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THE A. I. ROOT COMPANY, Publishers, Medina, Ohio

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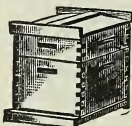
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M'n'g Editor

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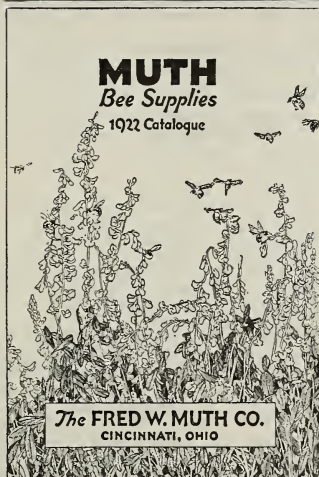
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A MESSAGE FOR YOU

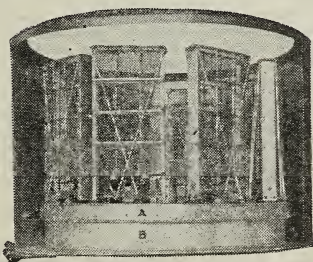


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HONEY MARKETS

U. S. GOVERNMENT MARKET REPORTS. Information from Producing Areas (First half of June).

CALIFORNIA POINTS.—Beekeepers report that the orange flow is over, but that bees are still gathering sage honey. The yield of orange honey is reported as fair to good; that of sage and buckwheat as good. Both orange and sage new crop are said to be of fine quality. Few sales are reported in carlots, f. o. b. usual terms, from California points, of extracted water white orange blossom and sage at 9½-10c, fancy high as 10½c per lb. Light amber alfalfa, no sales reported, but shippers quoting 6-6½c per lb.

INTERMOUNTAIN REGION.—Throughout much of the territory the continued good weather has given the bees considerable strength, and the swarming period is now on, about three weeks later than usual. Honey plants generally growing very fast, and in spite of the late season it is thought that the bloom will be scarcely a week later than normal. A good crop is expected from sweet clover. In Arizona some loss reported due to early breeding followed by cold spells with little honey on which to keep going. Mesquite flow is said to be almost a failure in Salt River Valley as result of recent hot weather, but some honey being taken from alfalfa. No carlot sales reported, but it is understood that white sweet clover and alfalfa can be bought in large lots in 5-gal. cans at 8½c per lb. Small lot sales in 5-gal. cans and smaller containers reported at 10-10½c per lb. Some beekeepers selling to near-by dealers at 8½c per lb. in 60-lb. cans.

TEXAS POINTS.—Continued rains proving disastrous to honey yield and to colony increase. Horsemint now reported in full bloom, but bees apparently not storing surplus from it. Many beekeepers report little surplus from any source; others say their spring crop has been nearly normal. Due to lack of nectar and pollen, as a result of wet weather, many colonies reported dwindling. Sunshine needed badly if cotton and mesquite flows are to produce much surplus. Queen-cells reported in June by several beekeepers—unusually late in the season for Texas. Light amber extracted reported selling in 60-lb. cans at 8-8½c per lb., and mild white 6/10s at 9½c, 12/5s at 10½c per lb. Chunk honey, 6/10s reported in small lots at \$9.00 per case for white and \$7.80 per case for light amber. Quotations received of 10c per lb. for chunk honey in 60-lb. cans.

EAST CENTRAL AND NORTH CENTRAL STATES.—White clover, alsike and raspberry are in bloom and the main flow has commenced. Bees storing rapidly, and with favorable weather conditions a heavy crop should be taken off. Heavy swarming is reported from several sections. Very large sales of bee supplies reported. Many beekeepers throughout the entire clover belt apparently returning to comb-honey production as demand for sections is reported the heaviest in years. Many new beekeepers reported in Michigan. Extracted honey largely exhausted. Some large lots white clover in 60-lb. cans offered at 11½c per lb., f. o. b. shipping point, but few sales reported.

PLAINS AREA.—Colonies said to be in good condition. Flow is now coming on from alsike and white clover, and with sufficient showers prospects look good for a normal crop. Swarming reported by some beekeepers to be worst in years.

NORTHEASTERN STATES.—Bees said to be doing unusually well. Alsike and white clover are now in bloom, and, with abundance of rain, a normal crop of honey should be secured. Some surplus being stored. Basswood is reported budding fairly well. Some beekeepers report heavy for white clover and 8c per lb. for buckwheat in 60-lb. cans. Beekeepers reported selling extracted white clover to near-by dealers at 10c per lb.

WEST INDIES.—Shipments from Cuba have fallen off somewhat but are still heavy. Sales made recently in barrels to Antwerp at 57c per gal., including cost and freight; f. o. b. price quoted at 4c per lb.

SOUTHEASTERN STATES.—In Florida the

season is over, resulting in a small crop. Some beekeepers have not taken off any surplus at all. Orange and saw palmetto in small tins reported selling around 12-12½c per lb. Alabama reports that the first 10 days of the clover flow were ruined by cloudy and rainy weather, but prospects are now good for a normal crop. Protracted and heavy rains in Georgia have injured cotton and other honey plants in some parts of the state; in others, the fall honey plants are said to be in good condition. Spring flow practically over. Little demand reported for large shipments. Some sales reported in 34-gal. barrels of fancy at 10c per lb.; No. 1, 8c; No. 2, 6c, and some extra fancy at 12½c per lb. Light amber reported selling in small containers at 10-12½c per lb. Comb, fancy, white, has recently sold at \$4.50 per case and No. 1 light amber at \$4.00 per case. Bright yellow beeswax listed at 25c per lb.

Telegraphic Reports from Important Markets. Market Reports are for June 14.

BOSTON.—Boat receipts equivalent to 1 car Porto Rico arrived since last report. Comb honey in light supply, good stock being almost cleaned up. Little demand for comb, moderate demand for extracted. Prices practically unchanged. Comb: Sales to retailers, New York, 24-section cases best, \$6.50-7.00; poorer, granulated, \$4.50-5.00. Extracted: Sales to confectioners and bottlers, Cuban and Porto Rican, amber, 80-85c per gal.; California, white sage, 15-16c per lb.

CHICAGO.—Since last report 1 car Colorado and 600 lbs. Ohio arrived. Extracted: Market dull and about steady with supplies rapidly cleaning up under slightly improved demand. Sales to bottlers and bakers, Utah and Arizona, alfalfa and mixed mountain flowers light amber, 8½-9c, mostly 9c; Nevada, white alfalfa and sweet clover, 10-11c; Iowa and Wisconsin, white clover, 11-12c; mostly 12c. Comb: Supplies remain liberal. Market weak. Sales to retailers, 24-section cases Wisconsin, white clover No. 1 fancy, few, \$5.00-5.50; Colorado, Arizona and Montana, white alfalfa and sweet clover No. 1, \$4.00-4.50. Beeswax: Receipts light. Market about steady. Sales to wholesale druggists and laundry supply houses. Colorado and California, light 30-32c; dark, 26-28c. Central American, light, 26-28c; Chilean, light, 28-30c.

NEW YORK.—Domestic and foreign receipts limited. Supplies rather limited. Demand and movement light, market dull, few sales. Extracted: Spot sales to jobbers, wholesalers, confectioners, bakers and bottlers, domestic, per lb., California, light amber alfalfa, 8-8½c, light amber sage, 9-10c; white sage, 11-12c; white orange blossom, 11½-12½c. Intermountain Region, white sweet clover, 10½-11c; New York, white clover, 10-11c; buckwheat, 7-7½c; South American and West Indian, refined, per gal., best 68-70c; poorer, 60-65c. Beeswax: Foreign receipts light. Very good demand, strong market. Spot sales to wholesalers, manufacturers and drug trade, South American and Chilean, light best 32-35c, poorer, 29-30c. Brazilian, fair color, 24-26c; African, dark, 24-26c; Cuban, light, 25-27c; fair color, 20-23c.

PHILADELPHIA.—Extracted: Supplies generally light. Demand is very slow and the market is reported as about steady. Very few sales in small lots reported to retailers, Cuban amber and Porto Rico light amber, various flavors around 72c per gal. Beeswax: Supplies light. While there is very little demand the market is a trifle stronger. Sales to manufacturers, African, good quality, medium dark 26-27c per lb.

ST. LOUIS.—No carlot receipts of comb or extracted since last report. Demand is very light, practically no movement, market very dull. Comb: Sales to wholesalers and jobbers in 24-section cases, Colorado and Idaho, white sweet clover and alfalfa No. 1 medium, \$5.50-6.00. Extracted: Sales to wholesalers and jobbers, per lb., in 5-gal. cans, California, light amber, alfalfa, 8-10c; mostly 8½-9½c. Beeswax: No receipts reported during past two weeks. Not much change in market. Ungraded average country run wax quoted to jobbers nominally at 26c per lb.

H. C. TAYLOR,

Chief of Bureau of Markets.

Drouth and hot winds have stopped the honey flow in this section for the season. Former estimate of yield is too high. One hundred pounds will be a fair average, unless red clover yields later. Basswood matured prematurely by the hot dry winds.

Peru, Ind. Geo. S. Demuth.

From Producers' Associations.
There is no activity worth mentioning in comb honey, and extracted honey in large quantities is entirely closed out in this section. Prospects for a crop are fairly good.

The Colorado Honey Producers' Assn.,
Denver, Colo. F. Rauchfuss, Sec.

The Opinions of Honey Producers Themselves as Reported to Gleanings in Bee Culture.

Early in June we sent to actual honey producers the following questions:

1. How does the honey flow thus far compare with normal in your locality? Give answer in per cent.
2. What is your estimate of the 1922 crop as compared with a five-year average? Give answer in per cent.
3. What price are producers in your locality expecting to receive for the new crop at their station if sold in large lots? (a) For ex-

4. What prices are expected when honey is sold to retailers in small lots? (a) Comb honey, fancy and No. 1 per case? (b) extracted honey in 5-lb. pails or other retail packages?
5. Is there any of last year's crop still in the hands of producers in your locality?
6. Has the swarming been worse than usual in your locality this season?

The answers as returned by our honey and bee reporters are as follows:

States.	Reported by:	Honey Flow.	Honey Crop.	In large lots.		To Retailers. Comb.	1921 Swarming Crop ing	
				Ext.	Comb.		Ext.	Unswarmed Worse.
Alabama	J. C. Dickman	100	120	.09	\$6.00	\$6.50	\$.75	Yes
Alabama	W. D. Achord	100	100	.10			.75	No
Alabama	J. M. Cutts	40	100	.08		4.80	.0	No
Arkansas	J. Johnson	100	100		4.80		.0	Yes
California	M. A. Saylor	100	100	.09	3.00	3.60	.75	.0
Colorado	J. A. Green	85	65			4.40	.65	.1
Colorado	B. W. Hopper	100	100	.10	4.00	4.50	.75	.0
Connecticut	A. Wath	20					.0	No
Connecticut	A. L. Yates	125	100				.0	Yes
Florida	C. C. Cook	160	160	.10	3.60	5.00	.75	.5
Florida	H. Hewitt	175	150	.12			.80	.0
Florida	W. Lamkin	125	140	.08			.60	.0
Georgia	J. J. Wilder	120	105	.09	3.35		.75	.5
Idaho	J. E. Miller	55		.15	4.80	3.60	.60	.0
Illinois	C. F. Bender	110	100		4.80	5.50		.0
Illinois	A. L. Kildow	100	150			4.50	1.00	.0
Indiana	T. C. Johnson	100	150			6.00	1.00	.0
Indiana	E. S. Miller	100				4.80	.80	.20
Indiana	Jay Smith	25	75				.0	Yes
Iowa	E. G. Brown	10	25	.10		5.00	.80	.2
Iowa	F. Coverdale	100	100	.10	4.80	5.50	.70	.0
Iowa	W. S. Pangburn	100	90				.75	
Kansas	J. A. Nininger	100	120			6.00	.75	.0
Kentucky	P. C. Ward	100	100					.1
Louisiana	E. C. Davis	100	125				.5	No
Maryland	S. G. Crocker, Jr.	90	100					No
Maine	O. B. Griffin		100		6.00	7.00	.0	
Massachusetts	O. M. Smith	100	100				.0	No
Michigan	I. D. Bartlett	125	100	.10		4.50	.75	.0
Michigan	F. Markham	100	100		5.00	5.50	.80	.0
Missouri	J. H. Fisbeck	120	120				.0	Yes
Missouri	J. W. Romberger	100	100			5.80	.80	.0
Montana	R. A. Bray	85	95	.10	5.25	6.00	.75	.0
Nevada	L. D. A. Prince	50		.10	4.50	6.00	.75	.0
New York	G. B. Howe	100	100				.0	Yes
New York	F. W. Lesser			.12	4.20		.0	Yes
New York	A. J. Spahn	100	100				.10	No
North Carolina	C. S. Bungarner	110	110					No
North Carolina	C. L. Sams	100	105	.15	4.70	6.25	1.25	.0
Ohio	R. D. Hiatt	90				5.00	.90	.1
Ohio	F. Leininger	100	100				.0	Yes
Ohio	J. F. Moore	80	80	.12	4.30	4.50	.80	.5
Oklahoma	J. Heuelsen	100	100	.15	5.50	6.00	1.00	.0
Oklahoma	C. F. Stiles	110	100				.0	Yes
Oregon	E. J. Ladd	100	75				.0	No
Pennsylvania	H. Beaver						.0	Yes
Pennsylvania	D. C. Gilham	105		.13	5.40	7.00	1.00	.3
Pennsylvania	C. N. Greene	100	100	.12	4.80		.75	.4
Pennsylvania	G. H. Rea	75	90					No
Rhode Island	A. C. Miller	50	77				1.25	.0
South Carolina	A. S. Conradi	100	100			6.00	1.25	.0
Tennessee	G. M. Bentley	50	75			9.50	1.50	.0
Tennessee	J. M. Buchanan	100	100					No
Texas	T. A. Bowden	40	50				.75	.2
Texas	J. N. Mayes	50	60	.10	3.35	3.85	.60	.0
Utah	M. A. Gill	90	80	.08	3.60	4.00	.50	.0
Vermont	J. E. Crane	125	125			7.20	1.25	.0
Virginia	L. N. Gravely	65	40	.15	4.80	6.00	.85	.0
Washington	W. L. Cox	50	65				.0	No
Washington	G. W. B. Saxton	95	100	.10			.75	.0
Washington	G. W. York	50					.0	No
West Virginia	T. K. Massie	60	75			6.00	1.00	.0
Wisconsin	E. Hassinger, Jr.	100					.0	No
Wisconsin	N. E. France	75	60				.0	No
Wisconsin	H. F. Wilson						.0	No

Requeen Now!

While you can get good queens cheap. L. L. Forehand's Queens are backed by twenty years of careful selecting and breeding. They are bred from the imported stock direct from Italy, the best in the world for honey-gathering, disease-resisting, prolificness, gentleness and non-swarmling.

Give my queens a trial, and, if you are not entirely satisfied in every way, your money will be refunded.

Guarantee

I guarantee every queen will reach you alive, to be in good condition, that she will be purely mated and give perfect satisfaction in every way. Safe delivery guaranteed in U. S. and Canada only.

	1	6	12
Untested	\$0.95	\$ 5.25	\$ 9.95
Selected Untested	1.10	6.25	12.00
Tested	2.00	10.00	18.50
Selected Tested	2.75	15.00	27.00

If queens are wanted in larger quantities, write for special prices.

L. L. Forehand, Fort Deposit, Ala.

A Chance to Save Some Money on SHIPPING CASES

100 Regular Shipping Cases, $4\frac{1}{4} \times 1\frac{1}{2}$, packed 50 per crate....	\$25.20
400 Regular Shipping Cases, $4\frac{1}{4} \times 1\frac{7}{8}$, packed 50 per crate....	26.10
250 Regular Shipping Cases, $4 \times 5 \times 1\frac{3}{8}$, packed 50 per crate....	25.20
230 Regular Shipping Cases, $4 \times 5 \times 1\frac{3}{8}$, packed 10 per crate....	5.25
90 Regular Shipping Cases, $4\frac{1}{4} \times 1\frac{7}{8}$, packed 10 per crate....	5.50
210 Regular Shipping Cases, $4\frac{1}{4} \times 1\frac{1}{2}$, packed 10 per crate....	5.25

All cases listed are single-tiered with glass K. D.

The A. I. Root Company

873 Massachusetts Ave.

Indianapolis, Indiana

To Sell Your Honey Well

It Must Look Well

THIS means, whether you sell your honey locally or ship it, and whether it is comb or extracted, that it must be put into good-looking packages,—tin, glass or carton. Then, if you ship it, the shipping case must be strong enough to prevent any possible damage to the package in transit. The dressing-up of your honey package with a handsome label is another part of the honey-selling business. If you are going to do roadside selling, as thousands of beekeepers do, you will want an attractive "Honey for Sale" sign. You may, too, want some sample mailing blocks in which to send samples of your honey to distant customers, or you may need a pair of scales for weighing sections, or a stamping outfit to mark net weight on your sections.

WE are ready to serve you in any and all of these ways with the very highest quality of goods, very promptly and at some considerably reduced prices. Just run through the list of honey packages, cans, pails, tumblers, jars, cartons, shipping cases, etc., etc., listed below. Note the lower prices quoted on many of these articles—then order today while the stocks at our home office and at our branches are full and in finest condition.

Following prices are subject to change without notice. There is already an upward tendency in the market on metals.

FIVE-GALLON (60-LB.) SQUARE CANS AND SHIPPING CASES.

Our five-gallon square cans are equipped with wire handle, 1 $\frac{1}{4}$ -inch screw cap, put up in strong re-shipping cases, having $\frac{7}{8}$ -inch ends, $\frac{3}{8}$ -inch sides, bottom and top, no partition. The following prices are f. o. b. Medina, New York, Baltimore and New Orleans. Shipment will be made from point nearest you. Prices:

	10 cases.	50 cases.	100 cases.
5-gallon square cans, 2 in case.....	\$10.50	\$50.00	\$95.00

(Shipment from Chicago 10c per case extra.)

SMALL SCREW CAP OBLONG CANS.

The small screw-cap oblong can is very convenient for selling honey locally as well as for shipping. Equipped with wire handle, 1 $\frac{1}{4}$ -inch lined screw-cap. Prices:

6 1-gallon oblong cans.....	Weight 15 lbs.	Per box, \$ 1.50
12 $\frac{1}{2}$ -gallon oblong cans.....	Weight 20 lbs.	Per box, 2.10
100 1-gallon oblong cans.....	Weight 110 lbs.	Per box, 18.00
100 $\frac{1}{2}$ -gallon oblong cans.....	Weight 80 lbs.	Per box, 13.50
100 $\frac{1}{4}$ -gallon oblong cans.....	Weight 50 lbs.	Per box, 10.50

PARCEL POST CANS IN CARTONS.

This is our regular small screw-cap oblong can equipped with a suitable carton for shipping honey by parcel post. This arrangement makes shipments by parcel post safe and secure. With a little advertising, a beekeeper can develop a nice mail order business for his honey, using this parcel post can to ship. Prices:

$\frac{1}{2}$ -gallon parcel post can with carton.....	1, 22c;	10, \$2.00
1-gallon parcel post can with carton.....	1, 30c;	10, 2.70
$\frac{1}{2}$ -gallon carton only.....	Per 100	4.50
1-gallon carton only.....	Per 100	6.00

ROUND JARS.

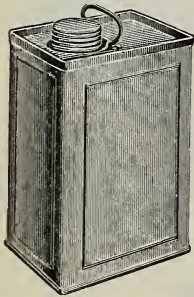
The round jars we have to offer are made of clear white glass. This white glass does not darken the honey's color as green glass does. The jars are fitted with lacquered tin caps, lined with thick wax paper disk; packed in re-shipping cases of 24 jars each. The following prices are f. o. b. Medina, Chicago, Indianapolis, New York, Philadelphia and Norfolk. Shipment will be made from point nearest to you. Prices: Weight. Per Case. 30 Cases.

16-oz. Round Jar, 24 in case.....	18 lbs.	\$1.20	\$33.00
32-oz. Round Jar, 12 in case.....	12 lbs.	.90	25.50

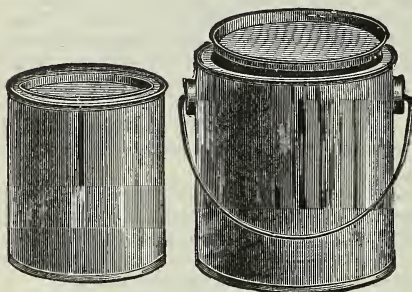
The following prices on round jars are f. o. b. St. Paul and New Orleans, and these prices will be applicable only when shipment is to be made from these points:

	Weight.	Per Case.	30 Cases.
16-oz. Round Jar, 24 in case.....	18 lbs.	\$1.35	\$37.50
32-oz. Round Jar, 12 in case.....	12 lbs.	1.00	28.50

SEE NEXT PAGE.



To Sell Your Honey Well →



FRICITION TOP CANS AND PAILS.

We offer these for shipment in original packages only, either from Medina or from factories located in Central Western Virginia, Southern Ohio, Southeastern Iowa and Southeastern Louisiana. Prices:

	Box of Price	Carton of Price	Crate of Price
2½-lb. can..	24 \$1.10	100 \$4.00	500 \$18.00
5-lb. pail..	12 .90	50 3.25	100 6.50
10-lb. pail..	6 .75	50 4.50	100 9.00

(NOTE—The 2½-lb. can has no bail while the 5-lb. and 10-lb. pails have a wire bail.)

6½-OUNCE TUMBLER.

For an inexpensive package holding a scant half pound of honey, the tin-top tumbler is very popular. We supply with these tumblers, besides the tin top, a wax paper disk for sealing it tight when filled with honey. 6½-ounce Tumbler with tin top, 4-dozen case.....\$1.40

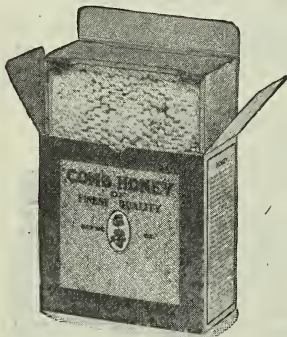
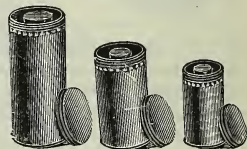
MASON AND E-Z SEAL JARS.

The Mason and E-Z Seal Jars we have to offer are made of clear white glass which will show off the honey far better than the cheap green glass jars usually found on the market. The Mason jar is furnished with zinc cover with porcelain lining and rubber ring. The E-Z Seal jar is equipped with glass cover and snap spring seal. Rubber ring included. We can furnish these jars in pint, quart and one-half gallon sizes. Write to Medina or the nearest A. I. Root Co. branch for lowest prices.

SAMPLE MAILING BLOCKS FOR HONEY.

Our sample mailing block consists of a small wide-mouthed bottle with cork, enclosed in a screw-top case, which conforms to the postal regulations, for mailing samples. Prices:

One-ounce block, each.....	10c
Two-ounce block, each.....	12c
Four-ounce block, each.....	15c



CARTONS FOR COMB HONEY.

The best salesman for the beekeeper who makes a business of producing comb honey, is an attractive and sanitary carton. Comb honey put up in cartons is free from dust and flies. Being printed in two colors with this special engraved design on the front, it makes a very handsome package. The panels all contain appropriate printed matter in regard to the food value of honey, and how comb honey is produced. Directions are given for keeping in a warm, dry place.

The Danz. or slip carton listed below is open on the sides instead of top and bottom. It is advisable to use a rubber band with this open carton. In ordering cartons be sure to mention size of sections they are wanted for.

Price of folding cartons printed.

Sizes of Sections—4¼ x 1⅞, 4¼ x 1½, 4 x 5 x 1⅞....Price per 100, \$1.35; per 1000, \$13.20

Price of Danz. or slip cartons printed:

Size of Sections—4¼ x 1⅞, 4¼ x 1½, 4 x 5 x 1⅞....Price per 100, \$1.25; per 1000, \$12.00

For printing name and address on cartons, add.....Per 100, \$1.50; per 1000, \$3.00

For plain cartons with no printing, deduct.....Per 100, \$0.20; per 1000, \$2.00

SEE NEXT PAGE.

To Sell Your Honey Well

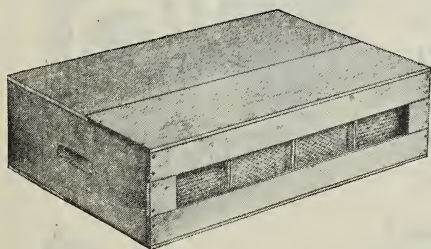
SCALES FOR WEIGHING SECTIONS.

The most simple way of finding the weight of section comb honey is to use some form of spring scale. We have two kinds which are quick to operate and handy to use.

	Weight	Price
Postal, 1-pound capacity	10 oz.	\$2.50
Invincible, 2-pound capacity, with scoop.....	2 lbs.	3.50

STAMPING OUTFIT FOR SECTIONS.

This consists of three molding stamps—"Net weight not less than 12½ oz.," "Net weight not less than 11 oz.," "Net weight not less than 10 oz.," and a self-inking pad. Net weight stamping outfit for sections.....\$1.60 postpaid



SHIPPING CASES.

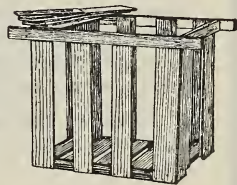
Comb honey, to be shipped safely and bring top price, requires a very strong as well as a good-looking shipping case. This is exactly the kind we make. Our cases are regularly single-tier for 24 sections, but can furnish the double-tier case from Medina or Council Bluffs. When in flat, we include nails, and as ordered we ship with or without 2-inch glass strips with the necessary grooved wood strips and end-blocks to put in the glass side. Prices:

Size of sections.	In flat with glass, in lots of		In flat, no glass		Wt.
	10	100	10	100	
4¼ x 4¼ x 1⅞	\$6.00	\$58.00	\$5.75	\$55.50	360
4¼ x 4¼ x 1½	5.80	56.00	5.55	53.50	340
4 x 5 x 1⅜	5.80	56.00	5.55	53.50	340
4¼ x 4¼ x 1⅜	5.80	56.00	5.55	53.50	340
3⅝ x 5 x 1½	5.80	56.00	5.55	53.50	340

CARRIERS FOR SHIPPING COMB HONEY.

In shipping a quantity of comb honey the regular cases should be packed in carriers, cushioned underneath with at least four inches of straw to absorb the jar when handled. Eight 24-lb. beehive or 4 x 5 plain section cases may be placed in each carrier. These carriers have handles extending from each end to give freight-handlers no excuse for rough handling. Material for carriers will be furnished in flat only. Carriers should be lined with heavy paper when filled. Specify for what size case wanted.

Comb-honey carrier, KD.....Weight, 15 lbs. \$1.75



"HONEY FOR SALE" SIGNS.

We have two kinds of "Honey for Sale" signs to offer. The one shown in the illustration is 19½ x 28 inches printed in two colors on heavy cardboard on both sides. The other one is made of strong metal with a green painted background. The border and wording "Honey for Sale," are painted yellow and are very attractive. Size 8¾ x 14 inches.

Cardboard sign. Postpaid\$0.80
Metal sign. Postpaid..... 1.00

HONEY LABELS.

Our catalog of handsome new honey-label designs will be out within a few days. These

will be the handsomest labels we have ever offered the beekeepers. Write for this catalog, and we will mail it as soon as it is off the press.

THE A. I. ROOT COMPANY, MEDINA, OHIO

**HONEY
FOR SALE**



The Smoker

You Ought to Own

THE most important invention in beekeeping, as little can be accomplished without the Bee Smoker.

The new Bingham Bee-Smoker is the most efficient and durable machine on the market. The standard for over 40 years in this and many foreign countries, and is the all-important tool of the most extensive honey producers of the world.

Comes with metal legs, metal binding and turned edges. The four larger sizes have hinged covers. The fire grate is of very substantial material, with an abundance of draft holes, the 4-inch size having 381 holes, equal to an opening of 2-inch square.

A valve in the bellows of the larger sizes makes the Smoker respond to the most delicate touch.

The new Bingham comes in six sizes, including the Big Smoke, which is furnished both with and without shield. The larger sizes are best, as they hold more fuel, give more smoke, require filling less often, and are especially recommended to those who work with their bees several hours at a time.

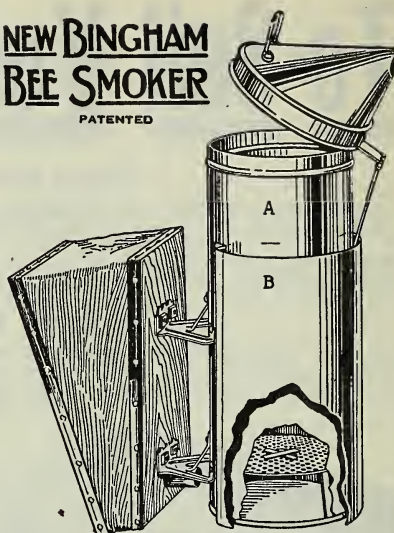
Write for our complete catalog of bee supplies and accessories. Special circular of all sizes of Bingham Smokers free for the asking.

A. G. WOODMAN CO.

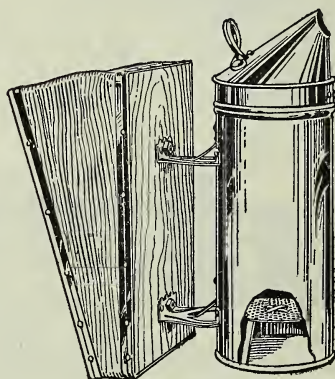
238 Scribner Ave., N. W.

GRAND RAPIDS, MICH., U.S.A.

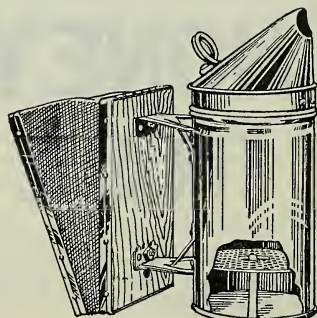
NEW BINGHAM
BEE SMOKER
PATENTED



BIG SMOKE—With Shield
Fire Pot, 4 x 10.



CONQUEROR.
Fire Pot, 3 x 7.



LITTLE WONDER.
Fire Pot, 3 x 5½.

A SUPERIOR
QUALITY AT
LESS COST

Supplies

(MADE BY THE DIAMOND MATCH CO.)

A SUPERIOR
QUALITY AT
LESS COST

Reasons why our prices are reasonable: Our supplies are brought to us in cargo lots by steamer from California through the Panama Canal. The resulting saving in freight cost is passed on to our customers.

One-Story Complete Dovetailed Hive

With metal telescope cover, inner cover, reversible bottom, Hoffman frames, nails, rabbets.

Standard Size.

Crate of five, K. D., 8-frame.....\$12.65

Crate of five, K. D., 10-frame..... 13.25

Jumbo Size.

Crate of five, K. D., 10-frame..... 14.25

Hive-Bodies

With Hoffman frames, nails, rabbets.

Standard size, crate of 5, K. D., 8-fr..\$5.20

Standard size, crate of 5, K. D., 10-fr. 5.85

Jumbo size, crate of 5, K. D., 10-fr.. 6.85

Hoffman Frames

Standard size100, \$5.20; 500, \$25.00

Shallow100, 4.30; 500, 21.00

Jumbo100, 5.80; 500, 28.00

Diamond Brand Foundation

Medium5 lbs., 68c lb.; 50 lbs., 65c lb.

Thin Super...5 lbs., 75c lb.; 50 lbs., 72c lb.

Comb Honey Supers

For 4 x 5 x 1 3/4 sections including section-holders, fence-separators, springs, tins and nails.

Crate of five, K. D., 8-frame.....\$5.60

Crate of five, K. D., 10-frame..... 6.00

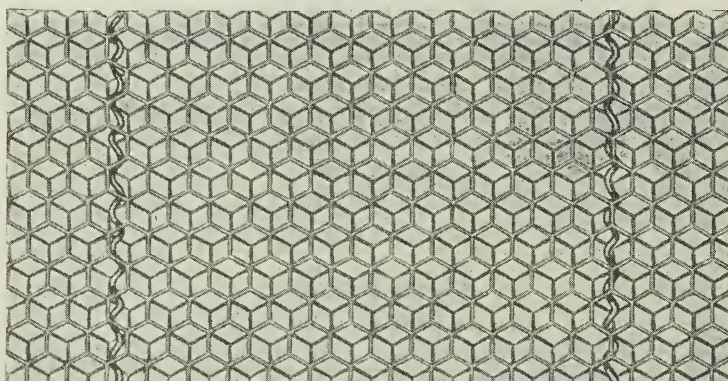
HOFFMAN & HAUCK, INC.
WOODHAVEN, NEW YORK

Shoulders of Strength

in

Dadant's

Makes non-sag all-worker comb, **WIRED**. Cuts out cost and labor of hand wiring.



Quickly accepted by bees without reservations. **NON-SAG**, the finished comb a delight to the eye.

Wired Foundation

NOTE THE CRIMPS in the wires. These are permanent, even under weight, and they reinforce the comb with angles of support radiating in all directions.

THIS IS AN ENTIRELY NEW IDEA in foundation making. The wire, woven into the wax by machinery, makes a rigid yet flexible sheet, producing a straight, desirable, **non-sag** comb.

DON'T BE DECEIVED by evidence from previous experiments with vertical wiring. There is no precedent for this new means of support, affording **radiating shoulders of strength** throughout the comb.

TESTED BY TIME AND USE. Dadant's Wired Foundation is not an experiment of a few months' time, but is a carefully evolved specialty of a lifetime of foundation specialists. It has also been thoroughly tested for several years in large apiaries in all parts of the United States.

DADANT'S WIRED FOUNDATION may be used in new-style split bottom-bar frames or in the old-style one-piece bottom-bar frames with equal satisfaction. It is also adaptable to any size and style of brood or extracting frame.

COSTS NO MORE. Since Dadant's Wired Foundation cuts out the cost and labor of wiring, its extra price of three cents per pound above the catalog prices of old-style foundation is thus more than returned to the beekeeper.

ASK FOR SAMPLES. A small mailing sample sent free on request. Special Offer: A sample of seven sheets, for either split bottom-bar or old-style one-piece bottom-bar frames will be sent, postpaid, to any address in the United States for \$1. Specify size desired. Only one sample to a person.

Wired Foundation is sold by all distributors of Lewis "Beeware" and Dadant's Foundation. Send them your orders.

Dadant & Sons, Hamilton, Illinois

Catalog and Prices on Foundation, Bee Supplies, Beeswax, Wax Working into Comb Foundation and Comb Rendering for the asking.

GLEANINGS IN BEE CULTURE

JULY, 1922

EDITORIAL

IMPORTANT.—Be sure to write to your Senators. See bottom of second column this page.

AT the close of the honey flow, the colonies are usually very strong, and, if there is no



Making Increase at Close of Honey Flow.

this great horde of workers is now of but little value to the colony.

Such a large population is needed only during the honey flow. In some localities this great force of bees will be practically idle the remainder of their lives; but, of course, if there is any nectar available at any time before these bees die off, they will quickly pay for all it cost to rear and maintain them.

Many beekeepers have learned the trick of utilizing this great force of workers at the close of the honey flow, where the season closes in July, by making increase. An easy way to do this is to divide the bees and the brood of a colony into two parts, making the divisions about equal, and then hauling one of the divisions to an out-apiary. This prevents the field bees from returning to the old stand, thus avoiding one of the difficulties encountered in making increase in the same apiary. A young queen is, of course, introduced to the now queenless colony.

If no out-apiaries are being operated, the hive should be left two stories high when the honey is taken off. The queen, together with one frame of the youngest brood, should then be placed below and the rest of the brood in the upper story and a queen-excluder placed between the two stories. Ten days later the upper story can be taken away to make increase, at which time a young laying queen or a queen-cell should be given. The field bees will, of course, return to the old location, but the rapidly emerging brood will soon repopulate the newly formed colony.

THE House of Representatives has passed the bill mentioned in our last issue, prohibiting further



The Isle of Wight Disease Bill.

importation of adult bees into the United States

except under regulations made by the Sec-

tary of Agriculture and the Secretary of the Treasury.

While no direct opposition has come to this journal, some has made itself manifest to the American Bee Journal, to the effect that it is not necessary to bar all countries from sending bees or queens into this country at this time. The fact that Isle of Wight has now got into Europe makes it necessary to prohibit all countries from making such shipments until an investigation can be made. It is understood that Canada will be exempted at once. The bill that has passed the House, and which is now before the Senate, makes it possible to send honeybees for experimental or scientific purposes "upon such conditions and under such regulations as the Secretary of Agriculture and the Secretary of the Treasury shall prescribe." It further provides that these two officials may "make regulations to admit honeybees from countries where no dangerous disease of honeybees exists."

In interpreting the foregoing conditions the Secretary of Agriculture has made this statement: "I can assure you that when it is found desirable to import adult bees from any region, this will doubtless be permitted on evidence of the necessity and safety to the general beekeeping interests of the United States."

The opposition has further stated that the law is an attempt to help the breeders of Italians. It seems hardly necessary to answer this as the purpose is to *protect an industry before it is too late*. The law has provided means by which other races may be imported from countries where the Isle of Wight disease does not exist.

What more could we ask? Apparently the opposition has lost sight of the fact that honeybees or queens under the provisions of the proposed law may be sent for scientific purposes through the United States Department of Agriculture, or that the two officials mentioned may at any time, on proper evidence, lift the embargo against any country from which the importation of bees or queens is prohibited.

With this understanding we hope that every one of our subscribers (if they have not already done so) will address a letter to Senator Norris, chairman of the Agricultural Committee of the United States Senate, Washington, D. C., indicating your approval of Senate bill No. 3506, and urging

an early hearing, and at the same time address another letter to each of your United States Senators, asking for their support of the same measure. *Do not delay this a minute, but send a postal from your postoffice before you leave.* If you do not know who your Senators are, ask your postmaster.

We can imagine no greater calamity to the beekeeping interests than to have the Isle of Wight disease imported into this country. It is infinitely worse than foul brood, because *there is no known cure.* The best and only cure is to keep it out of this country. It would be unwise to make exemptions now unless it is in the case of Canada; and the fact that the disease is known to be not far from localities in Europe from which queens have been imported makes the menace all the greater. The early passage of the bill in the Senate is, therefore, imperative. Later on, exemptions can be made upon the submission of proper evidence.



THE following letter from Dr. E. F. Phillips is self-explanatory. It is highly im-



**Samples of Adult Bees
Wanted by the Bureau
of Entomology.**

portant that
beekeepers
co-operate
in this, for,
if this mite

should be brought into this country, we should know it the first minute possible.

I shall appreciate it greatly if you will ask through *Gleanings in Bee Culture* that beekeepers finding any adult bees that show abnormal conditions will send samples to this office for examination. Last summer a considerable number of samples of adult bees were examined, and no mites causing the Isle of Wight disease were found. While it is hoped that the mite is not found in this country, there will remain the need for further search, and this office will be glad to have such material. Queen-breeders and others who have imported queen bees from foreign countries should carefully examine the colonies to which the queens were introduced, and, if anything unusual is found, samples should be submitted. It will be well to send about 250 bees where that is feasible, together with a description of the conditions observed. In some bees recently examined which came with imported queens unusually heavy infections of *Nosema apis* were found, but so far the mite, *Acarapis woodi*, has not been encountered in such cases. Your co-operation in obtaining additional material for examination will be greatly appreciated.

Very truly yours,

E. F. Phillips.

Bureau of Entomology, Washington, D. C., June 7.



IT may seem strange to begin to think about preparing for the 1923 honey crop



**Planning Now
for Next Year.**

now in the midst of
the harvest of the
1922 crop, but the
foundation of next

year's crop must be laid in July and August. Thousands upon thousands of colonies are rendered useless for the following summer every year by neglecting some little essential at this time. One great difficulty is that, at this season, the beekeeper is so deeply engrossed in the harvesting of this season's crop that the crop for next year

seems of little relative importance; but, later, there will be plenty of time to regret having neglected some of the things essential to the maintenance of the colonies in a prosperous condition. Two things in management for next year's honey crop stand out prominently at this time—the replacing of all inferior queens, and making sure that the colonies are not stripped too closely of their stores. When taking off honey to be extracted, an upper story containing considerable honey should be left on the hive. If feeding for winter is to be done later, as is the practice in Canada and the coldest portions of the United States, the unfinished honey may be put into this upper story that is left on the hive through the late summer and fall. This extra story, partly filled with honey, not only provides food for the bees after the honey flow ceases, but if there is a fall honey flow it provides room for storing the late-gathered honey. If not too far north the extra story can be left on all winter, in which case it should be nearly filled with good honey.



MORE and more beekeepers are learning that it pays to have young queens in their colonies during the latter part of the summer. It was noticed



**Requeening
in July.**

many years ago that the largest yields usually come from colonies that were parent colonies the last season, and not often from the swarms of last season. The reason for this is largely that the parent colony had a young queen during the latter part of the season, while the swarm usually retained the old queen. Young queens, that begin to lay in July or August, lay more eggs during late summer and autumn than older queens, thus supplying the colony with more young bees for winter. These young queens are also in their prime the next spring when they are expected to do their best work for the heavy spring brood-rearing period. While it may not always be advisable to replace the queens every year, the tendency for beekeepers to do so is increasing in some localities when producing extracted honey. Comb-honey production does not place such a heavy burden upon the queens as does extracted-honey production, and as we go northward from the tropics the burden is also somewhat decreased on account of the shorter season. In such cases it may be well to keep the queens two years; but, wherever the queens are worked hard, many are coming to believe that it pays to requeen every year.

In a large part of the country there is no better time for doing this than during the latter part of the honey flow in July. This permits the doing of the work while the bees are still easily handled, and the young queen begins to lay in time to supply the colony with an abundance of young bees before the cessation of brood-rearing.

WE have just come from visiting C. B. Hamilton of Fenton, Mich., who, a year ago, purchased from the



A Wonderful Queen's Comb Honey Record.

South 32 two-pound packages of bees, each containing a queen. One of these queens, with her 10,000 bees, performed a feat in comb-honey production which at first thought seems unbelievable. We will frankly say that we did not see how it could be done; but after an extended interview with Mr. Hamilton we are sure our readers will consider it quite within the realm of possibility.

The bees were received April 18—so early, in fact, that one would think that they would chill to death in the climate of Michigan before they would actually get under way. But Mr. Hamilton took pains to see that they were warmly packed, given hot syrup from time to time, and, in fact, every attention possible except to give the bees frames of brood or more bees. One package of the bees and the queen clearly outstripped all the rest, and when Mr. Hamilton saw what they were doing he watched them very closely. To make a long story short, the queen kept a two-story hive full of brood during the breeding season, sometimes having as many as 20 frames at a time, and part of the time she went up into the first super of sections with drawn comb. Mr. Hamilton did not know what she was going to do, and therefore he did not keep a record, he says. The flow from white clover last year was practically a failure on account of a severe drouth. This very drouth made red clover just right for the honeybee—that is, it stunted the blossoms so the bees could get the nectar. At all events they immediately went to work on the red clover, which, in connection with sweet clover and alfalfa, yielded an enormous amount of honey. When this red clover began to open up, Mr. Hamilton put on six supers of sections, each section containing a comb two-thirds drawn out from the previous season. In a few days, said Mr. Hamilton, these were filled up with honey. Then he piled on more supers. These were again filled in an incredibly short time, and still more supers, until he had 24 supers, each super containing 24 sections of drawn comb, or a pile of supers, including the hive, 12 feet high; “and at the end of the season,” remarked Mr. Hamilton, “I took away, filled, 23 24-pound shipping cases of honey.”

So far this story will seem almost unbelievable; and as we tell it we know many will say it is impossible; but taking the story just as Mr. Hamilton gave it, it is evident that the queen was the most prolific he ever knew of. She kept on laying, and he kept on giving warm sugar syrup up to the honey flow until there were bushels of bees—how many he does not know.

It is Mr. Hamilton's policy in the produc-

tion of comb honey to put on the first super of unfinished sections from which the honey is extracted and the cells cut down to about half their original depth with a special knife which he has designed. After they have been extracted and leveled down they are given to a big colony to clean up, “because,” said Mr. Hamilton, “there must not be a particle of honey left in the sections, as that will cause granulation.”

The next step is to put one of these supers containing drawn combs on the hive when it is ready for it. After that it is his rule to give supers containing only full sheets of foundation; but in the case of this remarkable queen, in order to see what she *could do* he gave her and her bees only supers of fully drawn combs. With bushels and bushels of bees and a long honey flow, he actually produced 577 sections from the one queen and his original two pounds.

Remember that his main flow did not begin until comparatively late, so the queen had a chance to build up from the syrup that was constantly given her.

Mr. Hamilton has sold the queen that made this record, and therefore he has no ax to grind as he has no queens for sale.

A Unique Trick of the Trade for Comb-Honey Producers.

Mention has been made many times in the journals of applying hot paraffin to hive parts to prevent the bees from smearing these parts with liquid propolis; but somehow the idea seems never to have been developed except in parts of the West, especially in Colorado and Idaho. Mr. Hamilton has worked it down to a fine science. He takes a pan of hot paraffin with an ordinary varnish brush and gives a fine, nice coat to the tops of his sections after they are in the supers and before they are given to the bees. The brush when not in use must be kept continually in hot paraffin; and just before applying it to the sections it is wiped off on the pan to remove the drip, when it is given one sweep lengthwise over the tops of four sections. The brush must not be worked back and forth, for that will cause bubbles and make an uneven surface. Supers should be tilted up to an angle of 45 degrees, and the brush given only one sweep down. “Bees will not then deposit any smeary glue over the tops of the sections having a thin coating of paraffin on top,” said Mr. Hamilton.

This trick of coating the tops of the sections with paraffin, while old, is good just the same. So, likewise old is the trick of giving drawn combs in sections; but when it helps to increase the crop of comb honey and at the same time invite the bees up into the sections with a rush, it is certainly worth trying. Don't forget that “bushels” of bees are another important factor. That, of course, means a *good queen*. We have come to the stage in apicultural history where we must have not only larger brood-nests but also queens that can fill them.—E. R. R.

MIGRATORY BEEKEEPING

Success Depends Upon Keen Observation, Proper Application and Hard Work

By M. C. Richter

THE element of chance always accompanies the migrator, yet disregarding this fact, the practice of migratory beekeeping as carried on in California is decidedly profitable. Our semi-tropical climate, varied topography, long seasons and good roads make this possible. In addition, the states of Nevada and California practice reciprocity. It is quite true that migratory beekeeping helps to disseminate disease, but its practice should be condemned on that account no more than, for instance, the transportation of sheep from one pasture to another.

General Considerations.

Migratory beekeeping brings into play nearly every phase of beekeeping. Of course, bee behavior, the very foundation of beekeeping, must be thoroughly understood, and it requires a great deal of ingenuity to maintain intact that big working force throughout the long season. Of next importance is plant behavior and the relationship which it bears to climate, especially seasonal variations. As pointed out in last month's article, this phase of our problem is the most puzzling, and it is here that we experience the big element of chance, which, by the way, affords such keen delight to almost all of us. Such possibilities! We must be believers in the adage, "Anticipation is two-thirds the pleasure of life." In the winter time when we plan our migratory adventures we become quite worked up as we proceed from one contemplated move to another. Frequently our plans do not work out. It is because we know so very little about honey flows. How are we going to know whether they are going to be light, or when they will begin, or when they will end? We never shall be able to know with

any degree of certainty, as we are unable to foretell weather conditions which influence them. Climatic records and the records pertaining to the length and char-

acter of flows over a period of years are of inestimable value to the migratory beekeeper.

Keen observation, an ability to apply such observations to practical use and the ever increasing value of records are a part of this work that no one can afford to neglect.

Another important item is that of maintaining an accurate account of operating costs throughout the season. The cost of production for each migration also should be definitely known and made use of in connection with the number of pounds of honey produced. This branch of the work is ever so important, for it may happen that a certain migration resulting in a 70-pound surplus actually proved less profitable than an another move where only a 50-pound surplus was gathered. In such a case the cost of moving in the former was greater than that in the latter.

Another qualification pertinent to migratory beekeeping, which has not been considered to any extent in the past, is that of endurance. It happens frequently that the beekeeper must drive his truck throughout the entire night and well into the next morning before his destination has been reached. The test of one's strength comes during the morning hours and especially when the colonies are being placed on their stands preparatory to releasing the bees. Anxiety regarding suffocation likewise taxes our powers of endurance. Yet these night experiences linger longer in our memory and add immensely to the fascination



The modern method of moving entire apiaries long distances over California paved highways.

of migratory beekeeping. There is no gain-saying the fact that there is a great deal of hard work connected with moving of bees.

Honey Sources.

In migratory work we do not always move to obtain a surplus. Early in the season it is often the intention to have the bees situated where they can avail themselves of early bloom, such as willow, deciduous fruits, principally almond and prune, and certain varieties of eucalypti and mustard. In the fall it is necessary for the bees to breed up sufficiently so as to rear the necessary amount of young bees to insure favorable spring breeding, and also to secure enough stores for the same purpose. Thus, the migratory beekeeper avails himself of the late-blooming honey plants. The chief late and early plants are willows and eucalypti. In parts of the San Joaquin Valley, in favorable years, willow furnishes honeydew as late as November and December, and every year in all parts of the state, pollen and nectar in January and February, according to the season. Several eucalypti, according to the species and season, bloom during the winter months and have proven their worth for stimulative purposes.

As spring advances, orange and sage are the big drawing cards. Sometimes they come into bloom simultaneously; but orange secretes earlier than sage and, since the flow is shorter and rapid, there is time enough to move to the sage as the orange flow begins to fail. At the termination of sage, there are several good nectar sources. The central California sage beekeepers prefer to move to alfalfa; others may tarry longer and wait for a flow from either wild buckwheat, wild alfalfa, or possibly sumac; or they too may journey, but toward the coast, to the lima bean fields of Ventura and Los Angeles counties.

When moving from sage to alfalfa the preference is to go into Nevada, since alfalfa is a far better secretor in that state than it is in California. Owing to the foul-brood laws of our neighboring states, this form of migration confines itself to the shipment of three-pound packages of bees. However, the alfalfa of the San Joaquin Valley is nearer at hand and very good yields are obtained from the second, third, fourth and fifth crops. April, May and June are the sage months, according to the locality and season. Alfalfa in California usually starts to secrete in June and continues till August or September.

In the fall of the year the great valleys afford better bee pastures than the Coast Range Mountains or southern California. The upper Sacramento Valley leads with star thistle, a most excellent honey plant, producing a most excellent honey. Other

prominent Sacramento Valley fall plants are mint along the rivers, and tarweed, yellow sticker and blue curls along the plains. In the San Joaquin Valley the honeydew from the willow, in favorable seasons, starts early and lasts well into winter. Along the plains alkali weed, spikeweed, jackass clover and blue curls are good secreters of nectar, especially where they have been favored with late spring rains.

Nevada beekeepers think quite as much of our orange groves as we do of their alfalfa fields, and these two sources of nectar are worked to mutual advantage.

When to Move.

One of our most difficult problems is to



The Ford truck does good work when distances are not too great.

determine the best time to move. Again we find ourselves confronted with the elusive subject concerning the character and duration of honey flows, and we find it necessary to resort to our records and observations. Our records should show us our daily gains, and when we find that such gains have lessened to four or three pounds, or perhaps notice a very slight inclination to rob (a sure sign of flow stoppage) we know at once that it is time to move. We disregard the fact that we may possibly get a daily gain of two or three pounds for another week, and also that our next flow may not start for several days, a week, or possibly longer. We believe that a migratory beekeeper always makes a mistake if he waits till a flow is practically over before moving. If he does, he has shaken somewhat the morale of his bees, his queens have practically ceased laying, and the brood-nests during the latter days have become well filled with honey. Conditions such as these may be avoided by moving early, and it is a well-established fact that moving incites breeding. A journey always seems to stimulate the bees to greater field activity. Thus when bees have been moved to a new locality, although the main flow has not yet commenced, they are, in the main, better prepared for future honey gathering.

If it is found necessary to move bees in warm weather during a good honey flow, it is better to do so in the early hours of morning than in the evening when the bees

have arrived home. The reason is that there is less nectar in the hives at such a time.

Preparation of Colonies for Moving.

Upon preparing a hive for moving, much depends on the distance it must travel, the strength of the colony, the season of the year and the manner in which it is conveyed. Every colony that undergoes transportation should have at least three pounds of honey for short distances, and 10 to 15 pounds for the longer distances. This honey should be so distributed that each frame does not contain more than two pounds, if possible. If it contains more, the likelihood of virgin comb, especially, breaking loose from the frame, on account of the constant jarring, is exceedingly great. Frames, well filled with old comb built on wired foundation, well clamped or otherwise fastened, with no more than three pounds of honey, can stand an unusually large amount of rough handling. There are several ways in which the frames may be held securely in the hive. When the Hoffman self-spacing frame is used there is no shifting of frames possible, but other styles of frames need something to hold them in place. In cases of this kind, a strip of wood with a series of teeth fastened upon it, somewhat similar to a hay rake, is pushed down between the frames one at each end of the hive. The teeth fit between the frames fastening them all securely.

The kind of hive used is important, but of still more importance is the condition of the hive when being shipped. This, of course, applies to the covers and bottom-boards as well. These should not only be strong and fit tightly to the hive or screen, but also so constructed that they can be piled one upon the other without any danger of working loose, or being broken. Migratory beekeepers should have their bottom-boards nailed fast to the hive.

Bees moved in the winter, or when the colonies are not very populous and it is quite cool, do not need a screen over either the top or bottom of the hive for ventilation; but the cover is nailed on, the hive-bodies are cleated and a V-shaped strip of wire screen is pushed into the entrance.

On moving strong colonies during warm weather, deep top screens must be used, and if the colonies are very populous, and the distance fairly great, it would be wiser to move without some of the flight bees. This may be accomplished by moving rather late in the afternoon while some of the bees are still in the fields. In such a procedure, a few weak colonies may be left in the yard in order to pick up the homeless bees. The danger from "melt downs" in warm weather is so great that it has been found expedient to sacrifice a few thousand of the older bees when moving under such conditions. It should also be remembered that Italians are less excitable than black bees, and consequently undergo a journey much better.

Ample super room with deep screens afford clustering space for the bees away from the brood and honey and help greatly towards preventing suffocation. Of equal importance in this respect is proper ventilation. When bees are on the move there is usually a good circulation of air about the hives, but when they become stationary and are exposed unavoidably to the sun, there is very great danger of losing them. At such times dousing with cold water does not seem to help. If the bees begin to "sweat" they should be released at once. We give water only when we want to save the unsealed brood in the hive, and this is always done in the morning, when, under normal conditions, the water-gathering bees leave the hive for that purpose.

Big Sur, Calif.



ON May 10, 1922, or a few weeks after his 75th birthday, one of the pioneer leaders in beekeeping in the State of New York, if not in the whole United States, passed away. I refer to P. H. Elwood of Starkville, N. Y. While Mr. Elwood did not belong to the earlier class of pioneers, such as Langstroth, Quinby, Gallup, Wagner and Dzierzon, he was nearly contemporary with them. When he was a young man, at the early age of 23, he was able to build on where they left off. In 1870 he went into partnership with Capt. J. E. Hetherington, one of the most exten-

PIONEER BEEKEEPING

P. H. Elwood Had a Large Part in Development of Self-spacing Frames, Solving the Swarming Problem, Etc.

By E. R. Root

honey in the United States, operating over 1000 colonies for many years. Mr. Hetherington, his former partner, was brilliant, scintillating, a man full of ideas, and very much ahead of his time. Mr. Elwood, likewise very much ahead of his time, was the opposite in some respects, in that he was conservative, cautious, and when he did adopt a new idea it was only after it had been shown in a small way to have value.

sive honey-producers, then known in the world. Five years later he went into business for himself, and continued one of the largest producers of

The pity is that not more beekeepers are built along these lines.

Two Schools in Beekeeping.

In the 60's and 70's there were two schools of beekeepers. One advocated a loose hanging frame without spacing-devices, such as Mr. Langstroth invented and recommended. The other school advocated and adopted an entirely different style of hive and frame—a frame of the self-spacing type with ends closed throughout. Hetherington, Elwood and many more in New York belonged to the latter school. There were some of the other school who were inclined to poke fun at them because they had adopted the bee-smashing (?) hive of Quinby, the frames of which were supposed to be daubed up with bee glue, and which, it was alleged, required hours for their manipulation when the others required only minutes. Neither Hetherington nor Elwood paid very much attention to the jokes fired in at them by the users of the Langstroth equipment. They kept still and sawed wood; or, more exactly, they kept right on producing honey and making money.

I may be pardoned for saying that it was not until 1890 that the ill-founded notions concerning the Quinby system were dispelled. During that year I conceived the idea of riding through the state of New York on a new safety bicycle, something that was more novel by far than the airplane of today. My objective point was the locality of the Hetheringtons and the Elwoods. I became convinced that there were some very fine features connected with the Quinby system which was later modified by Mr. Hetherington; and with that end in view I was not so very long in trundling my two-wheeler from Buffalo to Starkville, N. Y., the home of P. H. Elwood. I went directly to the hotel, but was told by the proprietor that he had positive instructions to tell me to go on to Mr. Elwood's home. I obeyed orders and arrived just about supper time, somewhat leg-tired, dirty, and wet with perspiration, but hungry enough to eat of everything on the table, and I did. I met there a family of boys and girls; a mother who received me as one of her own sons, and a father, a dignified cultured gentleman who made me more than welcome. He had been apprised of the object of my visit, and with the greatest care showed me how he could manipulate the so-called "bee-smashing Quinby hive and frame." During the week that I was with him he carefully explained to me the advantages of a closed-end frame—how the brood would be built up to the end-bars because there would be no side-eddyng currents of air; how he could hunt queens; how he could dissect the hive, take it all to pieces and put it together again, and yet not kill a bee, and that with no other tool than a common jack-knife; how those bad (?) Quinby frames, instead of being all stuck up with bee glue so that they would have to be separated

with a cold-chisel, could be separated and handled with ease. He showed how, when he opened up a Hetherington-Quinby hive, the daylight would pour through the hive. When he separated the frames he opened up the hive at its ends, letting the light in. When he got through with his manipulation he put the frames together, even though the bars were covered with bees, in such a way as not to kill a single bee, and certainly in much less time than it takes to tell it. He then showed how, with a couple of panels on the outside, he could, in connection



The late P. H. Elwood.

with just the frames, make a complete brood-nest without a hive-body. Such a hive, he demonstrated, could be made large or small without the use of division-boards. He also showed how he could put his comb-honey supers or "clamps," as he called them, on top, and then over the whole a telescoping cap such as is ordinarily used to cover the brood-nest during cool weather, but which, during the summer, is used to shade the hive and the brood-nest.

The illustration will show the original Hetherington-Quinby hive such as I saw manipulated, and which I later saw my friend, C. F. M. Stone, use in California. In this connection it is interesting to remark that Mr. Stone said his Quinby hive was always strong, and always ready for a crop of honey.

Mr. Elwood gave me my first intimation as to the value of powerful colonies; but I

did not at that time have sense enough to *sense* all that he said, because I was overwhelmed with the idea of the Quinby hive with Hetherington's improvements. I remember the feeling of enthusiasm that came over me as I went with Mr. Elwood from apiary to apiary, and I was fast coming to the conclusion that we beekeepers of the West could well afford to adopt that system—especially so as it provided a hive that was expansible in size and that would not kill bees. That to me at the time, and to many others, was a revelation.

I will not take time here to tell how Mr. Elwood drove me over those York State hills to his outyards. He would not let me use my bike, as he said he wanted to talk with me. And right here Mr. Elwood helped to make some modern beekeeping history—something that I have been wanting to tell the world for the last ten years, and now I am going to tell it.

The Birth of the Hoffman Frame.

I was planning to go back and tell father that I thought we ought to put the Quinby-Hetherington hive on the market, because I believed it would ultimately supplant the regular standard Langstroth equipment. I was young then, and at that age, as is the case with some others, my enthusiasm was inclined to run away with my judgment. It was right here that Mr. Elwood did the beekeeping fraternity a signal service. I can not remember his exact language, but I shall quote him as follows:

"I am glad, Mr. Root, that I have proven to you that the Hetherington-Quinby system is not a clumsy, impracticable, bee-smashing outfit. But, much as I like it, I am not going to recommend it to the beekeepers who already have, perhaps, hundreds and thousands of hives built on Langstroth lines. It would cost those beekeepers too much to change over. I will take you to a man who has a frame that I believe is adapted to the regular Langstroth hive, and which, I believe, you could well afford to adopt."

Right here, with his eyes looking over toward those everlasting hills, he stopped a moment and resumed:

"Young man, the beekeeping industry is still in its infancy. There are wonderful possibilities ahead of it. A great majority of the beekeepers of the United States have adopted the Langstroth system. I say to you it is a good one, and no man who has adopted that can afford to make a radical change; but," said he, "I think it could be improved."

"Do you mean," I inquired, "that we can have a hanging closed-end frame and put it in a Langstroth hive?"

"No," he came back with an instant response; "that would not work."

He continued, "I will take you over to a man named J. Y. Tunnickliff who has tried to use closed-end frames in Langstroth hives; but it is a bee-smasher; and in such

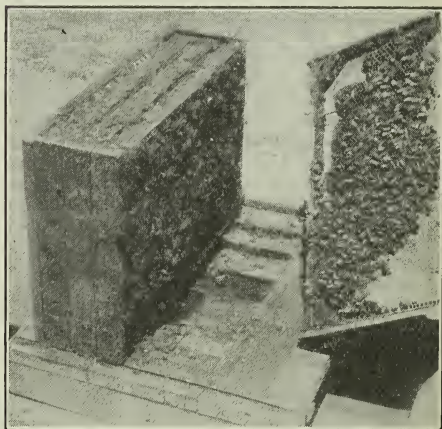
a hive you will lose the benefit of the closed-end frame."

Then he offered the prediction that the Heddon hive that made use of that principle would not be a permanent success. We now know how well the prophecy came true.

We drove over to Mr. Tunnickliff's, and there I became convinced from that moment that Mr. Elwood was right. After we came away and were driving along the road Mr. Elwood continued:

"Now, Mr. Root, I am going to drive you over to see Julius Hoffman of Canajoharie. I think he has a frame with partly closed ends that is eminently adaptable to the Langstroth hive. Considering the fact that there are hundreds of Langstroth hives where there is one Quinby, I want to recommend to you the Hoffman frame."

To make a long story short, both of us went to see Mr. Hoffman, and there I became convinced that he had the thing I was looking for—a self-spacing frame, partly closed end, that could be used in the hives then commonly in use.



Quinby closed-end frame. This shows how the brood-nest can be split up or dissected for examination.

I tried the original Hoffman frame at our Medina apiary, but found that I would have to make some changes—changes that resulted in the modern Hoffman frame that is sold now more extensively than any other brood-frame in the United States. Indeed, it has been made the standard by every bee-supply manufacturer in the country, and it has been the standard for the last 20 years. Like almost every good thing it met with a good deal of ridicule. I never went to a bee convention but that fun was poked at me for adopting and recommending that "horrible bee-smasher," and "something that did not work and never would work."

Frankly, some of my friends will not thank either Mr. Elwood nor myself for

putting this thing on the market; but the very fact that it is now a universal standard in the United States, and to a great extent in Europe, and that it is almost the only frame sold by bee-supply manufacturers, goes to show that my friend Elwood looked ahead.

My visit with Mr. Elwood, and the impressions I formed, I wrote up in this journal. This caused an amalgamation of the two systems—the Quinby and the Langstroth.

Some Other Pioneer Work.

My story is getting to be long; but I must not fail to tell you that Mr. Elwood was the pioneer in some other things. He was one of the first, if not the very first, to advocate some of the basic principles of swarm control that are now used by some of the most prominent beekeepers, which enabled him to operate more than 1000 colonies in out-apiaries for comb honey. Swarming was completely controlled by removing the queen, and then, later, destroying all queen-cells and introducing a young laying queen. I have not the time to go into the details of this; but doubtless Mr. Demuth will have occasion to refer to some of these original ideas of Mr. Elwood's at another time.

Mr. Elwood was one of the pioneers, again, in his method of wintering bees in the cellar. Some of the original principles that he initiated 30 years ago are now recommended and adopted in all the best beecellars all over the northern states and Canada. He used to winter 1200 colonies—all in one cellar.

The passing of such a man in the beekeeping history of the United States deserves more than a mere notice; and while the space of Gleanings is crowded we feel that, when a man of this type leaves the scene of this world's activities, we should pay proper tribute to his memory.

Right here the question might be raised, and I will answer it as I think Mr. Elwood would answer it if he were alive: "Is the Quinby system better than or equal to the Langstroth system?" I will say this much—that the latter is better adapted to modern beekeeping conditions as they exist to-day than the original Quinby with Hetherington's improvements, because it is more portable, better adapted to outyard work. Elwood saw that out-apiary beekeeping was coming to the front, and hence his recommendation to adopt a hive and frame—the Hoffman-Langstroth that would be suitable for moving.



THE time was when nearly every farmer kept a few colonies of bees for his own pleasure and profit. The beehive was as nearly as common a sight on the farm as the chicken coop or hogpen. In recent times, however, the beehive is rarely seen. There are several reasons for this, chief among which are bee diseases. The ravages of American foul brood and European foul brood have greatly depleted the colonies and have made beekeeping among the farmers very unprofitable and discouraging. The bee industry, like all other industries, has reached a point where specialization is necessary, and most farmers have neither the time nor inclination to specialize to the degree that is necessary to turn a loss into a profit. The handling of bees has always required a great amount of skill, but add to this the knowledge that is necessary to handle bee diseases successfully and you have a combination that requires more effort than the average farmer, with his manifold duties, can afford.

Not only has the appearance of bee diseases made necessary greater knowledge on the part of the person keeping the bees, but it has increased also the need of more intelligent apiary inspectors. The Entomolo-

AMERICAN FOUL BROOD

An Interesting Experiment in Disinfecting Frames by Boiling in Lye Solution

By Frederick W. Fabian and Ivan W. Parks

expect all beekeepers to be bacteriologists, yet they should have some knowledge of the principles and especially of the mechanism of transmission of these diseases and their control.

Various Chemicals Have Been Tried.

Various treatments have been recommended for treating American foul brood, with varying results. Phenol (carbolic acid) was one of the earliest chemicals used, but experiments have shown it to be ineffective. Beta naphthol, salicylic acid and soft soap have likewise been tried and discarded. In some cases it was suggested to feed the bees honey which contained the above chemicals. However, the treatment that has been most successful has not been a chemical treatment but the "shaking treatment" with which every up-to-date beekeeper is familiar. After the bees have been shaken from the diseased combs and the combs melted up for wax, the next question that arises is what shall be done with the diseased frames. It is rather expensive to burn them, but this had better be done than use

gy Department at this institution realizing this has included a course in bee bacteriology in the curriculum. Now, of course, it is manifestly absurd to

them again or place them where bees have access to them. It was with this point in mind that an experiment was made to determine the effectiveness of boiling the frames in a solution of lye.

An Experiment With a Solution of Lye.

The Entomology Department here recommended a solution of lye for treating frames of colonies infected with American foul brood. No previous work had been done to determine whether the solution was effective in killing all the spores of *Bacillus larvae* or not. Accordingly an experiment was undertaken to determine the effectiveness of the method. The method recommended was boiling the infected frames in a solution of lye (made by adding one can—12½ oz.—to eight gallons of water) for five minutes. The lye used in this experiment was the Red Seal brand, but any good, high-test lye may be used.

The above method was tried out in the following way: *Bacillus larvae*, the organism which causes American foul brood, was isolated by the method recommended by White (1) by using egg-yolk-suspension agar. The culture was tested for purity by inoculating it into all the laboratory media, by morphological studies and finally by feeding it, with proper precautions, to a colony of bees which were free from the disease. The pure cultures were grown for a week at 37°C and examined for spores, and an aqueous solution of the spores was made. Then 100 c. c. of the lye solution was brought to the boiling point (101.5°C) and 10 c. c. of the aqueous suspension of the spores was added. At intervals of one, two, three, five and seven minutes 0.5 c. c. portions of the material were removed and inoculated immediately into tubes of broth which had been previously acidified so that the addition of 0.5 c. c. of the alkali solution would give a reaction of pH=6.8. To these tubes of broth were added 1.2 c. c. of egg-yolk-suspension. They were then incubated at 37°C for five days.

Growth in tubes as determined by microscopic examination.

Time of boiling, 1;	growth, none.
Time of boiling, 2;	growth, none.
Time of boiling, 3;	growth, none.
Time of boiling, 5;	growth, none.
Time of boiling, 7;	growth, none.

Discussion.

The data in this table would indicate that boiling lye used in the concentration recommended by the Entomology Department was effective in killing the spores of the organism in even less time than five minutes. This is to be expected since White (1) has found the thermal death point of spores from American samples to be 96°C for 10 minutes and that of the most resistant spores, those from Cuban samples, to be 100°C for 11 minutes. Here we have a higher boiling point, viz., 101.5 and in addition the caustic action of the lye.

There is one factor, however, that should

be taken into consideration and that is the wax that might possibly be left on the frames. We tried experiments with boiling the frames in the solution of lye but failed to get growth. Several factors might influence the results here, however. The number of organisms that would be left on the frames and get into the lye solution would be so small that, in taking such a small quantity as 0.5 c. c., it would be easy to miss them. However, if the frames are cleaned from wax and dirt before boiling, what little remains will be dissolved by the hot lye solution and the spores killed. We were never able to obtain any spores from the frames after treatment.

Hydrogen-ion Concentration.

During the experiment we became interested in the hydrogen-ion concentration of the media and also in the hydrogen-ion concentration of the larvae. Normal bee larvae were obtained just before capping, crushed and the hydrogen-ion concentration determined by the colorimetric method of Clark and Lubs (2). The hydrogen-ion concentration was found to be pH=6.6, using brom thymol blue as indicator.

We found the optimum hydrogen-ion concentration to be pH=6.8, for both the bee larvae agar and the egg-yolk-suspension agar. The organism grew well between the ranges of pH=6.6 and pH=7.0, but best at pH=6.8.

Conclusions.

1. The temperature (101.5°C) of a boiling lye solution (12½ oz. to eight gallons of water) is sufficient to kill the spores of *Bacillus larvae* in five minutes.

2. The hydrogen-ion concentration of uncapped normal bee larvae is pH=6.6.

3. The optimum hydrogen-ion concentration for the growth of *B. larvae* in bee larvae agar or egg-yolk-suspension agar is pH=6.6 to pH=7.0.

The authors wish to thank Professor R. H. Kely of the Entomology Department for his interest in the work and for feeding the organisms to the nucleus.

East Lansing, Mich.

[A boiling lye solution has been used by beekeepers for many years in cleaning propolis and wax from frames, separators or other hive parts, the idea having been first suggested by Miss Emma Wilson, sister-in-law of the late Dr. C. C. Miller. In using lye to clean the frames in the treatment of American foul brood, the first consideration in the minds of beekeepers has been that of removing the propolis and wax; but, as the authors point out in this article, the lye helps to destroy the spores of American foul brood both by raising the boiling point of the solution and by its caustic action. The technical discussion of the optimum hydrogen-ion concentration is given here for those who may be interested in this phase of the subject, though this will not be of interest to many. In popular language this means that the authors were careful to have the

media used to test for the growth of the spores of *Bacillus larvae* suitable for the growth of that organism, so far as acidity is concerned. This was determined by measuring the reaction of normal bee larvae, which are the natural food for this bacillus. As pointed out by the authors, killing the

spores of *Bacillus larvae* suspended in water is a different matter from killing them when embodied in masses of wax or other foreign matter, but it is of value to know that the spores were destroyed in less than five minutes boiling in the lye solution when suspended in water.—Editor.]

NOT EXACTLY BEEKEEPING; BUT—

The Bees Greatly Benefited Hank Wetherbee.

HANK WETHERBEE has discontinued beekeeping and gone to work. In a statement to a representative of the Star, he said that, while the business as a whole had many points of interest, he had about decided that some sedentary occupation—like taming bulls, or blasting with nitro-glycerine—is much safer and quieter for a man of his retiring disposition.

It was from Mrs. Wetherbee, however, that the reporter was able to gather the full details of the surprising change that has occurred in Hank and his son, Web, and of Hank's sudden determination to dispose of his apiary and carry on the widow Perkins' hen farm.

It appears that some time ago Hank bought a hive of bees from a farmer and set it up in the back yard—with the intention of adding hives as the colony increased until he had a fair-sized apiary; then all he had to do was to put up a sign in front of the house, advertising the honey, and he could sit in a rocking chair on the front porch and dispose of the whole crop without further effort.

He had it all figured out that in 25 years or thereabouts, he would have enough surplus cash to buy the National Bank in the village, and foreclose the mortgage on Bill Prentiss who called him a durned lazy mug-wump, back in '82.

Hank had an affliction of the legs and back which he called "rheumatiz." This allowed him to hobble slowly around with the aid of a crutch but absolutely prohibited the use of a bucksaw, hoe or any implement which he had to grasp with both hands and move up and down or sideways with any degree of force or continuity of action.

Web was learning to emulate his father as nearly as he could, but suffered the handicap of not being the possessor of anything closely allied to "rheumatiz." He was tall and loose-jointed, with a foot like a summer squash and a deep and sincere aversion for work, which manifested itself at an early age and grew into a sort of mania as he advanced in years.

It seems that Mrs. Wetherbee had often labored with her husband and son both orally and physically when in need of firewood or help with the washing, and she showed several badly deranged flatirons and a hardwood rolling pin engraved with honorable

scars as evidence of her efforts along that line.

Hank and Web up to that time had successfully resisted all her blandishments tending toward manual labor: Hank, by calling attention to his pitifully crippled condition, and also by the skilful use of his crutch in warding off stray missiles; Web, by absenting himself with great speed and diligence whenever it was noticed the conversation was veering toward the dangerous subject known as "work."

A short time ago it became necessary, owing to the natural increase of the colony, to transfer a part of the bees to a new hive; and, as Hank considered himself incapacitated by his infirmity, he handed the job over to Web, but occupied a chair placed at a safe distance so he could comfortably supervise the transfer.

The boy had never had any experience with bees up to that time but felt himself equal to any honeybee that ever flapped a wing; so he draped several yards of mosquito netting over his hat, drew a pair of socks over his hands, and thus equipped, went out with a hatchet and bee-smoker to move a family of about 4000 busy honeybees who hadn't the slightest intention of looking for a new apartment until the first of May. Arriving at the scene of action he squirted a few puffs of smoke into the entrance to let them know the rent was due; then, inserting the blade of the hatchet under the cover, he ripped the roof off and laid bare the domestic secrets of the whole bee family.

No self-respecting colony of bees could be expected to stand having greasy smoke blown in their eyes, together with a sudden loss of their upper story, without getting somewhat "het up" over it, so they swarmed out with a noise like a circular saw and, surrounding Web on four sides, poked their stings hopefully into every hole and crevice in his clothing and glared angrily through the squares in the mosquito netting, daring him, in bee language, to come out and fight like a man.

Web got a little excited when he saw how mad they were, and in trying to side-swipe a few of them tore a gaping hole in the mosquito netting, allowing a handful of enterprising bees to enter and muss up his countenance some.

He wasn't exactly prepared to receive

this indignant delegation in the front balcony, so he dropped the hatchet and started to run; he didn't care much where he went, but he had a steadily increasing desire to get away from there suddenly and with as little fuss as possible. At the far end of the lot was a stone fence about six feet high, and Web was so anxious to let the poor bees have the entire back yard to themselves that he cleared it by a margin of four feet—and never knew it was there.

With great presence of mind he retained the smoker in a vise-like grip, and every few rods he slowed down and sent up a smoke barrage under cover of which he struck off at a different angle and increased his speed several revolutions. Hank had been a witness of it all, and it tickled him so much he couldn't sit in the chair; so, regardless of his "rheumatics," he rolled off on the ground in paroxysms of laughter.

While sitting up and rubbing his eyes after a particularly violent outburst he observed Web headed in his direction, surrounded by a cloud of bees and making better than 20 miles an hour. Hank motioned violently for him to sheer off a couple of points to starboard and run for the open sea, but Web had his steering gear set for the home port, and a convoy of 3500 bees furnished the incentive for a record-breaking trip.

As he flew past, a detachment of the yellow-barred fellows turned their attention to Hank, and that gentleman rose up as though the earth had suddenly been transformed into a red-hot griddle, and, forgetting his crutch and painful infirmity, started for

home with the lithe agility of a hungry weasel.

Mrs. Wetherbee saw them coming, and with great forethought locked the door and hid in the pantry. Despite Web's running start, Hank beat him to the house by the fraction of an inch, and Mrs. Wetherbee entrenched among the dishpans had the satisfaction of hearing them alternately beating on the door, and making an occasional rapid circuit of the house, varied now and then by the scuffling of feet and the sound of cuffs and blows whenever they were forced to make a stand to dislodge the ones that had landed on an exposed strip of hide.

After the bees had tired of the slaughter and returned to the dismantled hive, Mrs. Wetherbee opened the door and the beekeepers slunk in covered with angry red lumps and perspiration—both entirely new experiences for Hank and Web.

"Well, you poor cripple, how's the rheumatiz?" inquired the lady, placing her hands on her hips and eyeing Hank sternly; "seems to me you can hobble around quite peart today without your crutch, can't you?"

Hank saw the game was up, so he rolled a swollen red eye in her direction and opined feebly that he felt jest like choppin' up some wood—and Mrs. Wetherbee, watching from the pantry window, saw him bring the crutch and an armful of dry limbs to the chopping block and vigorously reduce them to a large and useful pile of kindling wood.

W. L. Clement.

Newburgh, N. Y.



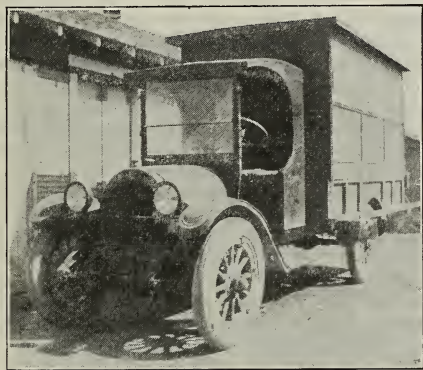
Hank cleared the stone fence with four feet to spare.



EXTRACTING HOUSE ON WHEELS

Some of its Advantages Over the Central Extracting Plant

I am operating a truck equipped with an eight-frame Buckeye extractor, gasoline engine, honey pump, uncapping outfit, and yet having plenty of room for the operator to work. The honey is pumped into a settling tank outside which is bee-tight. The top on this truck is positively bee-tight and storm-proof. I built this top myself, planning it for conveniences and durability, also comfort for the operator. As will be seen by



Extracting house on wheels. Completely equipped with Buckeye extractor, gasoline engine, honey pump and uncapping outfit.

the illustration, the top has a half curtain, and under this curtain there is a wire screen stretched tight. By raising these curtains the operator is always comfortable, especially with the breeze from the extractor.

I drive this truck up to my yards and in ten minutes we are extracting honey. I have one helper only, but each one of us does a certain part of starting the work and all is done with anxiety to make our usual average per day, which is 50 five-gallon cans between 8:30 to 5:00 p. m., when we clean up and load our honey on this same truck and start for home. I employ one man and produce as many pounds as some men do who employ three and four helpers and haul their honey to a central extracting plant. In this way my truck pays for itself and makes no complaints about the bee-stings.

Another thing to be considered is the breakage on combs while hauling to a central place; and the most important of all is the mixing of combs where foul brood is existing, and I must say with regret that it is found in nearly every location and state I have ever been in. I always put the

same combs back on the same colony after extracting. I try not to have over three to five exposed at one time and arrange my supers so as to come out of the truck in rotation as they went in, which can easily be done if the operator inside is careful. This is important, for the most of Idaho is pretty well blessed with foul brood, especially in this section.

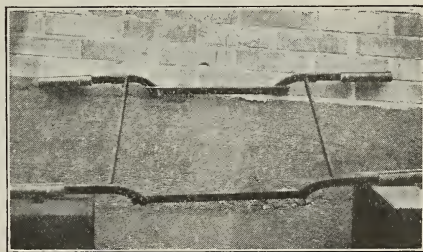
I can load 120 extracting-supers at one time and not use a rope or anything else to tie them down, simply closing my doors in the rear end and starting. D. C. Stahlman.

Buhl, Idaho.

LABOR - SAVING HIVE - LIFTER

A Handy Device for Lifting Off Supers When the Brood-chamber is to be Examined

Have you ever decided, at the close of a good honey season, to requeen your apiary but, as you looked across the rows of hives with their three or four supers each and thought of your poor old back, changed your mind and put off the job till some other time? If you have, do not do it again; but just get your blacksmith to make a machine like the one in the picture, then persuade your mother-in-law or your neighbor's boy to get hold of one end while you hold on to the other, slip it over the top and down to within a few inches of the brood-chamber, then smile as you see those supers suddenly move off and finally back again so gently that the workers in them hardly know they had been moved.

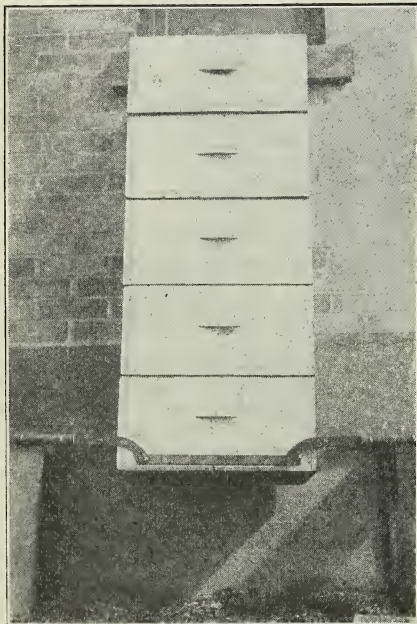


This hive-lifter is slipped down over the hive or the pile of supers, then as the handles are lifted the bars at the side grasp the hive firmly.

The contrivance is made of three-eighths or five-sixteenths inch iron, the hand pieces being $14\frac{1}{2}$ inches long with one end turned down $1\frac{1}{2}$ inches. The side pieces are 17 inches, with the lower part of the ends turned so as to catch the hand pieces when they go below level. This keeps the lifter straight when one picks it up and holds it out for the other to take hold. The cross-

FROM THE FIELD OF EXPERIENCE

pieces are $18\frac{1}{4}$ inches, besides what is turned back towards the handle to be riveted. These cross-pieces can be made any length to suit the size of hive; but, as the side pieces do not touch when lifting, an inch should be allowed for play. The cross-



Pile of supers supported by the hive-lifter. The greater the weight of the supers, the firmer the lower one is grasped by the lifter.

pieces when handles are level should be five-eighths of an inch farther apart than the hive is long.

When the handles are lifted the cross-pieces press against the ends of the box, and the greater the weight the tighter the grip. A broom handle may be ripped in two and bolted or riveted to handles to make them round. A contrivance like the above, made on a larger scale, can be used for moving packing cases in spring and fall.

Wanstead, Ont.

Thomas Martin.

FILLING QUEEN CAGES

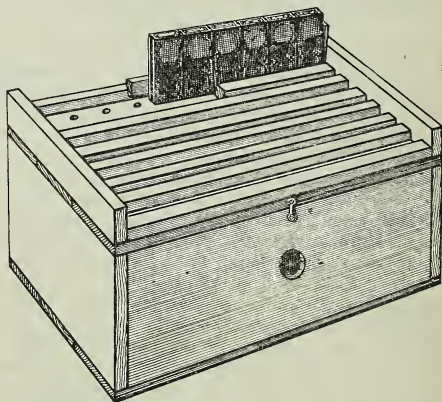
Novel Plan for Loading Forty to One Hundred Cages in Ten Minutes

We have made a discovery (or invention, or both) here in my yards, that should tend materially to cheapen the price of queens through reducing the work in shipping. Hitherto it has taken us a long and tedious time to load cages; now, in 10 minutes we can load 40 queen cages with bees. As I can find no mention of any such a device

in my available books, I believe the idea is original with us; if so, pray test the matter and pass it on to American breeders if you find it worth while. So far, this season, we have not lost a queen, and every cage has been loaded with bees by our method.

The basis of our plan is this: Bees confined without comb or queen in a dark place accept any queen readily (with exceptions). We have three strong colonies as "cage loaders." Each is in two stories with a queen-excluder and queen below. Great care is taken to allow no drones above. In order to avoid bees too young to travel, no brood is permitted to emerge above the excluder. It is put below when sealed. We have a box with a removable lid. This box has a hole near the bottom with wire cloth inside, and the hole is the right size to shut with a cork. The lid is pierced with 40 holes (or it could be 100) in four rows of 10 each. Between these rows are strips of wood to hold the queen cages upright with their wire-cloth surfaces turned to the light. A wedge device clamps the cages into position firmly. Each hole corresponds to the hole in a queen cage.

About 10 a. m. we go to a "cage loader" colony and shake two or three frames of bees into the box. Now jolt all bees into bottom of box and put on the lid with the cages. Open the hole in side of box, and smoke—two puffs of cool, white smoke are plenty, with a puff or two later if the bees lag. As the cages are light and well ventilated and the box dark and full of smoke, there ensues a mad scramble of bees to get



Queen cages in position to be filled with bees by the Cannell device.

up above into the queen cages. We allow the cages to get overcrowded before removing and permit a few bees to escape from each cage if necessary. The cages are now closed, made up into packages of from two to ten, depending on the day's orders, and removed to a dark cellar to allow the bees

FROM THE FIELD OF EXPERIENCE

to "cool off." At 5 p. m. we put a queen into each cage and return them to the cellar until morning. The cages go out in the first mail. I believe this method will allow me to double my output without seriously increasing my work. Each queen has 12 hours rest without jolts, and so far I have received two letters saying how chipper my queens were on arrival. I am well satisfied. Of course, I may be inventing an old plan over again, but I don't think so.

I note in *Gleanings*, the *American Bee Journal* and the *Bee World* that further importation of bees and queens into the United States and Canada is now forbidden. And not a day too soon. With *Acarapis woodi* identified in Switzerland, and probably in France, it is only a question of time until the mite is generally distributed over Europe. I myself have refused several queen orders from America since learning of the discovery of the mite on the continent. * * * * tried to place an order, and I refused it with two reasons given: (1) that better Italian stock can be had in America than in Italy; (2) that the importation of queens should be stopped before bees in America begin to crawl. I certainly am glad that the danger has been reduced now, as all breeders here might not be as interested in American beekeeping as I am.

Skipwith Cannell.

Aux Sieyes, par Digne, Basses-Alpes, Francee.

[The above is a part of a letter to Dr. E. F. Phillips, which he kindly forwarded on account of its value to queen-breeders at this time.—Editor.]



AN IMPROVED ROBBER CLOTH

How to Make and Use this Important Device.
Use of Wet Cloths in Swarming

I often wonder whether beekeepers as a rule fully appreciate the value of a robber cloth when working in the apiary. Also the use of a wet rag or cloth at times.

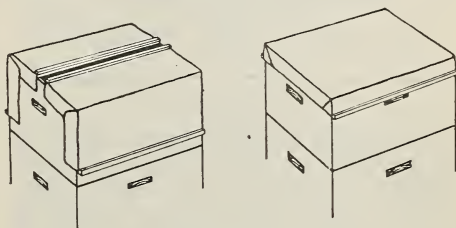
In the A B C and X Y Z of Bee Culture a robber cloth is described as follows:

Take about a square yard of sheeting or cotton cloth. If the hives are small less will do. Lay one of the edges on a piece of lath, about the length of the hive. Lay a similar piece of lath on top of it. Drive wire nails through and clinch. Treat the opposite side the same way.

Now, isn't that rather large and unwieldy? I prefer the cloth to be two or three inches broader than the width of the hive and about two inches longer than the length of the hive. This makes it more convenient to handle than if larger and is sufficiently large for the purpose.

I bind the two edges between two pieces of light $\frac{3}{8}$ x $\frac{5}{8}$ stuff which should be no longer than the hive. This allows the free, unbound ends to lap down over the upper edges of the hive ends.

It is well to have three or more of these and a half dozen would not be amiss, for if you happen to have two hives uncovered at once, which often happens, it is much handier to use a cloth than to have to put on the regular cover and then have to remove it again. If robbers are present I use two cloths over the hive I am working with. The first one is rolled back as the consecutive frames are taken out, and the other one is used to follow up and cover the combs that have been examined so that it is only neces-



Showing the improved robber cloth as applied on a super.

sary to have a small portion of the tops of the frames exposed, and this need be only while removing or replacing a comb. I have a light box in which eight frames will hang the same as in the hive.

It has a bail made of a piece of broom handle and two pieces of about $\frac{1}{2}$ x 1-inch stuff. The ends of these are nailed to the end of the piece of broom handle and other ends of them have a nail driven through them and into the box near the top center of the box ends. This allows of the bail being turned down out of the way, when it is not used as a handle. For a cover for this box I use one of the robber cloths, which is much lighter and handier than any tight cover that could be devised.

I nearly always use the cloth or cloths over a hive when manipulating, even if robbers are not abroad, for the bees in the hive are easier to keep under control than without it. Even with a very gentle colony there are usually just a few vicious bees that are ready to pop out suddenly and sting.

If the cloths are wet or dampened it is better, for then they lie closer to the hive edges and if there is wind blowing they will not flop around so badly. To make them still more efficient it is not a bad idea to sprinkle the cloths with a 10 per cent solution of carbolic acid.

I also find a wet cloth large enough to roll or fold up and close a hive entrance quite a convenience. In swarming time it is well to have a few of these lying around handy and even a few smaller rags. If swarms come out faster than they can be cared for, just grab a wet rag and cram it into the entrance. This will not kill or injure many bees, and it will give time to take care of the swarms already cut. If the weather is

FROM THE FIELD OF EXPERIENCE

not too hot they can be left closed up until there is more time to attend to them.

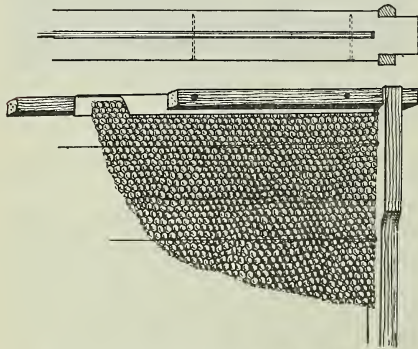
If robbers have discovered an opening between the hive and the cover, wet a large cloth and throw it over the hive so that it will hang over and close the crack. A portion of the carbolic acid solution, which should be kept in a Mason jar, applied to that portion of the cloth where the robbers have been entering will tend to discourage them. S. E. Miller.

Rhineland, Mo.

SAG PROOF THIN TOP BARS

A Metal Truss of Folded Tin Embodied Within the Top Bar

I was much pleased with the article of Morley Pettit on page 87 of the February Gleanings, in which he advocates a thin top-bar. Only I shall go him one better, as I am planning to make all my frames with a $\frac{3}{8}$ -inch top-bar. Of course, some one will get up and say: "They will sag." I will answer: "No, they will not when I get done with them." I am preparing machinery to make them with a slot cut through the center of the top-bar of the frame lengthwise, excepting about one inch at each end, using a saw that will cut nearly 1-12 of an inch kerf. Then I shall use a strip of tin



Thin top-bar strengthened by a truss made of folded tin.

cut about one inch wide, and folded lengthwise through the center, but leaving the edges about $\frac{1}{8}$ inch open, the tin strip to be about $\frac{1}{4}$ inch shorter than the inside of the frame. Then when I put in the foundation I insert the folded tin in the slot just lightly and insert the edge of the foundation in the fold of the tin, and with a block of wood force the tin and foundation clear through the top-bar. Then I drive about four $\frac{3}{8}$ -inch brads or small wire nails down into the edge of the top-bar through tin and all. Such top-bars do not sag, and the edges of the tin can be crimped so that it will be impossible for the foundation to pull out. I

can also recommend the above method of fastening those wood center combs H. H. Root tells us about on page 79, that is, for those who prefer thin top-bars.

Biddle, Mont.

E. W. Powell.

SOURWOOD UNCERTAIN YIELDER

Like Basswood it is Extremely Sensitive to Weather Conditions in Nectar Secretion

In the bee journals there is mention made quite often of sourwood honey and its high price and rare quality. It may seem to one who lives in a section where honey brings only 12c a pound that we mountain beekeepers are certain to get rich in no time.

For example, without advertising, I sold my entire crop to the consumer this year at \$3.50 per 10-pound pail. This was all the sourwood honey that 100 good strong colonies of Italian bees made. But it was only 1100 pounds. Other good beekeepers in the same section had only enough honey gathered to supply the bees.

Once in a few years the sourwood yields an enormous amount of honey, but the flow is never more than five weeks in duration. Honey may be coming in as fast as the bees can go after it, and there may be a profuse bloom on the sourwood trees, but day after tomorrow the bees may be robbing, because the weather-man has pulled the wrong lever for the beekeeper. In another day or two the flow may come back to some extent, but it will not fully recover. It is highly probable that the bees will gather no more than a living, after the honey flow has failed once, except in case of excessive rain. The blooms are not often damaged by rain, and sunshine starts the nectar again. The queer thing about it is that often the beekeeper does not know what caused the failure.

So when I read about the long honey flows, and harvesting honey by the carload, I wish I were there. I believe that it takes more careful beekeeping here in the mountains to make a success of honey production than in most localities. If we miss sourwood, we have no salable crop.

My crop is generally about half bulk comb honey, and half extracted. The price is the same. The demand for extracted grows faster than that for bulk.

The "skyscraper" hive is unknown here, but I suppose that where it is known the skyscraper price is unknown. If I can't have an average of three supers per hive, all well filled with honey, I can get as much for my one super as my brother beekeeper in the clover belt gets for his three, and feel that it is worth what I get for it. As long as it is so, I think that we should both refrain from kicking.

Hendersonville, N. C.

J. J. Slattery.

IN making bees-wax this spring I found I had 45 pounds of propolis from the scrapings of last year's sections, from which we made 11¼ pounds of bees-wax. It pays to make it up, but it is well to leave it till the last, as it sticks up the press and ruins the strainer. Or perhaps better still, mix it with old combs to be rendered.

* * *

Swarming is the earliest here I have ever known, and the outlook for a good yield of honey is the best ever.

* * *

On page 384 Grace Allen tells how she sorts over her combs before the busy season comes on—a practice that will well repay any beekeeper who cares to make the most of his bees.

* * *

Doesn't "The Clover's in Bloom" cover page of Gleanings for June look good? I believe there are few more beautiful flowers when massed to cover acres than alsike clover. I noticed last evening that the locust was also in bloom. Locust and alsike come with us about a week before white clover.

* * *

On page 390 Morley Pettit offers a plan to control swarming, that "never fails." Well, I am of the opinion that it comes as near to it as any plan, but suppose we overlook one of those little queen-cells as we sometimes do. With beekeeping as with a good many other things, "Eternal vigilance is the price of success."

* * *

Fifty-two years ago last winter I made fifty large double-walled hives and two years later I made seventy-five more. Nearly all of these are in very good condition, and in use today. For many years I kept the covers painted, but lately I have found a covering of good roofing paper cheaper, costing about 25 cents a hive or a section of honey and will last from 10 to 15 years.

* * *

"Eucalyptus groves make good wind-breaks," we are told below a California picture on page 369. By the way the trees are bent in the picture I should think those California beekeepers would need all the protection from the wind they can possibly secure. It is a good rule never to locate a yard where there is likely to be wind enough to blow covers off.

* * *

On page 378 Jay Smith throws some light on the cause of those "cataleptic queens," and it is quite possible he is right. We occa-



sionally run across a queen with a leg paralyzed, and so far as we can see wholly useless. I have been accustomed to think these paralyzed legs come from

having been stung, but it verges on the marvelous to think that a queen can stand a sting that would kill a worker. The greater vitality of the queen that enables her to live two or three years may account for it, enabling her to outlive a sting that would prove fatal to a worker.

* * *

A letter recently received from Lewis J. Elwood announces the death of his father, P. H. Elwood, on May 10. Mr. Elwood has been one of the large and successful beekeepers of the state of New York for the past 50 years. He was much more than a successful beekeeper. Beneath an unobtrusive exterior he possessed a strong, lovable, Christian character that will long be cherished by those who knew him.

* * *

"Thou shalt love thy neighbor as thyself," is a rule as beautiful as beneficent. Like the laws of light it is a universal law. It always has been, it always will be the moral law of the Universe. Its negation always has brought and always will bring discomfort, sorrow and suffering. It matters not whether one nation tries to rob another or one beekeeper starts a yard of bees close to another who has already all the field will bear.

* * *

The discussion of the "Cause of Swarming," by Geo. S. Demuth, is of unusual interest at this season. Among the many things that induce swarming is "congestion of the brood-nest," and this, he says, may occur with an abundance of room in the super, for room alone is not sufficient, but the bees must be induced to occupy it, a fact we are inclined to overlook. I remember, years ago, my sad experience with a yard of bees several miles from home. I thought if I gave enough room they would not swarm, and as I was going to produce extracted honey I gave them the room; but they swarmed very freely, in spite of a nice set of combs above the brood-chamber, many of them without storing any honey to speak of in the super. Later, I called on a number of beekeepers that had been very successful in preventing swarming and almost my first question was, "How do you keep your bees from swarming? I believe every one said that when putting on supers they always raised up some brood from the brood-chamber to the super, to induce the bees to occupy the extra room given them. I tried it and found it a great help.

MY orders are to go on writing about the Golden West. There, if the editorial staff should see that they might say, "What does she mean?"

we never gave her any such orders." Quite true, gentlemen, and you may save yourselves the trouble of indicating your preferences excepting by forwarding subscribers' comments, for the readers are the ones I always try to please. And judging from what the nice westerners tell my nearest man relatives I have been successful as far as they are concerned, even if I am a very new Californian. And eastern readers also seem to approve, some because they like to read another's impressions of what they have seen and enjoyed, and others because they are interested in what they hope to enjoy in the future.

If these articles have been confined to Los Angeles County exclusively it has not been from choice, for I love the whole great West and hope to see much of it before my time comes to "go west." But I have been afflicted with a frightfully busy husband the past few months, so busy that he has not even had time to take little motor trips among the beekeepers of this region, trips on which he has promised to take his wife. If "Hope deferred maketh the heart sick" it is a wonder I haven't a chronic case of heart trouble.

DURING these May days in southern California I have been wondering if the tourists who come here only for the winter months do not miss the most exquisite weeks of the year. Owing to the great amount of rain during the past winter no doubt the flowers are much finer than usual, but for weeks back nature has seemed almost wickedly extravagant. Certainly she is extravagant in roses. The grounds of fine estates, the homes of those in moderate circumstances and the tiny yards of the smallest bungalows are abloom with such roses as we see only at a florist's in the East. Pergolas are heavy with them, miles of wire fences along orange groves are draped with them, garages are hidden by them; there are hedges of roses, borders of roses, and the air along the boulevards is sweet with the combined fragrance of roses and orange blossoms. It seems almost a pity that nature should put forth so much effort to produce beauty that is so fleeting, for the most perfect rosebud lasts such a short time. There is a pergola roof over the south half of the porch of this Pasadena house, where we are living temporarily, and often the fallen rose petals are so thick that one cannot see much of the porch floor, and if every petal is swept off, within 20 minutes there is another rose petal carpet. In the East

WESTERN NOTES

CONSTANCE ROOT BOYDEN
(Stancy Puerden)

we used to save rose petals for rose jars and rose beads. In our new home next year I think we shall start a rose petal compost heap and feed it back

to the rose bushes.

And nature is almost equally extravagant with other flowers, wistaria, pansies, fragrant stocks, snapdragons, blue larkspurs, stately foxgloves, irises of all varieties, brilliant Transvaal daisies and so many interesting flowers that are new to me. And on the mountains and in the canyons are gorgeous and wonderful wild flowers, but lacking a nice botanist like Mr. Parks, who helped me in Texas last year, I cannot name many of them yet.

IN a state where flowers are so plentiful it is not surprising that honey is abundant, is it? But, honestly, it is amazing to see the extent to which honey is sold along the boulevards. It is a wonder to me that city groceries and provision stores can prosper when I see the number of booths and stores out in the country in every direction in which one can buy fruits, vegetables and honey, always honey. Some of these stores keep a general stock of groceries; some of them advertise home-baked foods and marmalades; some display rabbits and poultry; many of them sell ice cream cones, Eskimo pies, cold and hot drinks; but all of them, large and small, display honey. We stopped at one open-front store on the Foothill boulevard to buy oranges, and noticing the display of honey, the men of our party fell into conversation with the proprietor and found that he was a beekeeper with some 500 colonies of bees back in a canyon.

But in many cases the honey sold at these boulevard country stores is bottled by some firm in the city, and the proprietor of the store may not recognize a honeybee when he sees one. This just goes to prove that honey is becoming fashionable, which is a great thing for the beekeeping industry. At one of these wayside stores east of here, on the Valley boulevard I think, honey orange marmalade is featured. Some day I must buy a jar and find out whether it is as good as the Stancy Puerden variety.

The finest macaroons I ever tasted are the Honey Coconut macaroons which we have frequently bought in various stores in Pasadena, and were delighted to find them in the corner grocery near our future home in Alhambra. They are not too moist or sticky, as one might suppose they would be, but are exceptionally fine flavored, tender and vet with a "chewy" consistency. By carefully hiding them we have kept them in good condition for a week or two. They are neatly put up in waxed paper bags holding a dozen each and sell for 15c.

Several times, when out walking, I have caught a glimpse of a delivery wagon with the words "Honey Bread" on it, but have not been able to locate any of the bread yet. Honey would add greatly to the delicious raisin bread for which this part of the country is famous.

In the April issue of *Bees and Honey*, the official organ of the Alameda Beekeepers' Association, it is suggested that honey producers adopt the slogan "Eat it with Honey." That is a fitting accompaniment for "Say it with Flowers" or "Say it with Music," and has my heartiest endorsement. As I have so frequently said on this page, I dislike to have the public urged to use honey indiscriminately in cooking. It is degrading a delicious table sweet to the level of a cheap cooking syrup.

ONE day when my sister and I were climbing into the automobile of a real estate agent to go house-hunting I remarked, just to make a little conversation, "We beekeepers are hoping for some sunshine." You ought to have seen that man's face light up. Instead of getting into the driver's seat he came back and leaned over the side of the car and began to ask us questions. When he found out we were daughters of a beekeeper, wives of two more, sisters of two more and that our bread and butter had always come from the beekeepers' supply business he seemed to regard us as old friends instead of prospective customers. I suppose he should be classed as one of Mrs. Allen's enthusiastic "sideliners," but I predict that the real estate business is going to lose a man and the beekeeping industry will gain one soon.

He told us some interesting stories about how he acquired most of his bees. It seems California bees are like some of the rest of us in this part of California: they have their difficulties in finding a place in which to go to housekeeping when they decide to swarm. For that reason they have a habit of entering human dwellings uninvited and the average owner finds difficulty in evicting them. This real estate agent once removed a colony of bees from a house, a friend of the owner heard of it and requested his services. Others heard of this and so his fame spread. He has removed bees from frame, stone, stucco and brick residences and from factories and other buildings. California is rather deficient in hollow trees, and it is for this reason that bees enter dwellings and not because they are any more fond of human society than eastern bees. One day a husky policeman came down to our office in Los Angeles and begged for help in evicting a colony of bees from his home. Doubtless he was a brave man when dealing with lawbreakers, but he admitted his timidity when dealing with the temperamental little honey producers. We hear of so many similar cases that we call them the "unwilling beekeepers" of California.

BEING some three thousand miles from the Gleanings office it is a little hard to cut my page to fit. The following recipes were prepared for the last issue, but were crowded out.

Devil's Food Cake.

1/4 cup shortening	3/4 cup thick sour milk
1/2 cup brown sugar	1 1/2 to 1 3/4 cup sifted
1/2 cup honey	pastry flour
2 squares melted chocolate	1 teaspoon soda
1 teaspoon vanilla	2 teaspoons baking powder
2 eggs	1/2 teaspoon salt

Cream the sugar and shortening until smooth and then work in the honey and the chocolate which has been melted over hot water. Add the vanilla, beat in the eggs and then beat with a Dover egg beater until thick and fluffy. Add the sour milk and the flour, in which the other dry ingredients have been sifted, a little at a time alternately until all of both have been used. The batter should be as thick as ordinary cake batter, and as the amount of moisture in flour varies it is impossible to give the exact amount of flour. Bake in a moderate oven 30 to 40 minutes. Frost with the following frosting:

Easy Chocolate Frosting.

1 cup pulverized sugar	1 tablespoon butter
2 or more tablespoons	1 square melted chocolate
hot water or coffee	late
1/2 teaspoon vanilla	

Soften the butter and work into the pulverized sugar, adding the hot water a little at a time; then add the melted chocolate and the vanilla, stirring until smooth. This may be prepared while the cake is in the oven, putting it in a warm place until ready to use it, when a little more hot water should be added if it is too thick to spread easily.

Ginger Cookies.

1 cup shortening	1 teaspoon baking powder
1 cup dark-brown sugar	
1 egg	2 teaspoons ginger
1 cup honey	1 teaspoon cinnamon
3/4 cup thick sour milk	1 teaspoon salt
1 teaspoon soda	4 or 5 cups sifted flour

Cream together the sugar and shortening, beat in the egg and then the honey. Add a little of the sour milk and then sift in a little of the flour in which the other dry ingredients have been sifted, continuing this until all the sour milk has been used and enough flour to make a dough which can be handled. Roll out, cut with a cookie cutter and bake in a moderate oven. This will make 60 or more fat cookies which will keep well, if the family permits it.

Steamed Brown Bread.

1 cup sifted white flour	1 teaspoon salt
1 cup cornmeal	3/4 cup honey
1 cup graham flour	2 cups thick sour milk
2 level teaspoons soda	1 cup seedless raisins

Wash the raisins and steam until plump, cool and dust lightly with a little of the flour. Mix and sift the dry ingredients together and add to the honey and sour milk which have been stirred together, adding any bran which remains in the sifter. Stir in the bran and steam two hours or more in three one-lb. baking powder cans which have been well greased and dusted with flour. The loaves may be put in a moderate oven for five minutes to dry them off after steaming. When done stand the cans on a folded towel, which has been wrung out of water, for a few minutes, run a thin knife around the edge and turn them out on a wire cake cooler.

Mock Macaroons.

2 egg whites	2 cups corn flakes
1/4 cup gran. sugar	1/4 teaspoon salt
1/4 cup honey	1/2 teaspoon vanilla
1/2 cup shredded coconut	1/2 teaspoon almond

Beat egg whites until stiff and dry, add gradually the sugar and then the honey, beating constantly. Then fold in the corn flakes, coconut and salt which have been mixed, add the flavoring and drop from the tip of a teaspoon on buttered shallow pans. Bake in a rather slow oven.

All measurements level.

WHAT temperamental things swarms are! And in a season like this, when swarms were so frequent—I speak for myself, John—these individual characteristics are particularly, often painfully, noticeable.

One Saturday afternoon in spring, we were pleased to have Porter Ward of Allensville, Ky., visit us. It was a cool damp day, and after hanging around the backyard till we got chilly, we went back home and settled down to a blazing wood fire. The telephone rang; a big swarm on a hackberry tree, was the message. Over we went, the three of us. Mr. Allen manipulated the swarm-catcher, the swarm hanging high. But it was late and cold. The bees that did not get into the basket stayed where they fell, chiefly on shoulders and ground. While looking for the queen among those on the ground, I pushed them about a bit with my fingers. Up went little bodies, wings waved wildly, and up my sleeves they started. I thought that was funny and let them go on. But the end of that swarm was fiasco. Those dumped in front of a hive went in most indifferently or not at all; those on the ground—and that was a large proportion—stayed where they were. There were bees on Mr. Allen's coat and in it; on his vest and in it; on my coat and in it—up the sleeves above the elbow so that I dared not bend my arms till the coat had been gingerly removed. They were not particularly sting-y, just crawly and unmanageable. So we gave up, most chagrined that Mr. Ward—with his unswarming hives!—should have seen so fizzly a job. The next morning we went over to complete it. It was scarcely finished, when out came another swarm. A clipped queen this time, and there she was, right where she was supposed to be. We slipped her into a cage, and changed the hives in approved orthodox style; back came the swarm, we ran the queen in and O. K.'d the job. Now if Porter Ward could have seen that, Mr. Allen was saying, when —“here comes another,” I cried. Another clipped queen, easily caught, caged, hive changed, swarm returned, queen run in—everything working as though recently oiled. Again we sighed for a spectator, especially Mr. Ward, who had been the sympathetic witness of our discomfiture. And again, a third time, came a swarm and we worked the clipped-queen-and-changed-hive system. And thought of the crawly swarm of Saturday.

As not all our queens are clipped, we don't know, when we find a swarm already out from who knows what hive, whether the queen is with them or not. So we assume she is, and catch the swarm. Or try to. Yet at that, how successfully, even by

Beekeeping as a Side Line

Grace Allen

myself, I secured two or three such a few days after Mr. Ward's visit. Several times I used the thrilling process of a bushel basket on top of a stepladder. And

then climbed as gracefully as the basket of bees allowed back over the fence, from the orchard to the beeyard.

The facts about our excessive swarming were these: the bees had honey left over from the fall before; spring came early; I came late. And even after I finally started the apiary work, the world was so full of a number of things that the bees got crowded pretty well off the program. Probably I have never given them so little attention, hive after hive. So here are the morals for newer sideliners.

First, start your spring work early. It is very important.



Taking his ease among his bees.

Second, do not increase the number of your hives beyond the limit that you can care for successfully and satisfactorily. If you have some half dozen other pressing and delightful interests, as some of us do have, hold your yard to a size that you can handle, and be satisfied with your own work. Apologizing for one's work is not stimulating.

Third, it pays to clip your queens. That is, unless you have hives or systems of management that convince you that your bees will not swarm. It is true that, if the beekeeper is not present when the clipped-queen-swarm issues, he cannot turn the pretty trick of changing hives while the bees are out. But he will know that no swarm will go away. If, having tried it two or three times, in his absence, they finally destroy their queen, he will have lost only her, instead of both her and the bees. And the few days' delay before a new queen is ready to go out may enable him to discover their condition and do something about it.

By what different ways do we approach our beekeeping careers! One has a hive given him, one—O favored one!—is born into a beekeeping family, many inherit api-

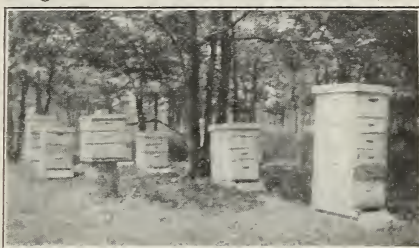
cultural leanings from grandfathers or uncles who kept bees in the good old ways of the good old days, some glean the desire from the printed page, and some enter into the apiary through the interest of a friend, or a husband, or a wife. Some, in the old inevitably adapted words, are born to bees, some achieve bees and some have bees thrust upon them.

The sideline beekeeper shown herewith reached his hives by the wife route. For it was his shorter and plumper half who first became interested. And she? She got her germ in a poultry journal! Being a bit thorough-going by nature, she was reading all the bulletins and journals she could digest, to learn how to keep chickens right. In one particular journal, on a particularly momentous day, she read a chatty article by a backlot chicken-lover, who concluded by suggesting that poultry-raisers might well widen their back-yard activities to include various other things—among them, a hive of bees. One needn't do any work, he assured his already busy readers, the bees would do it all. They would—'tis a familiar heresy—work for nothing and board themselves—and in due season the chicken fancier could go out with a pan and a knife and get his honey. Just so.

That sounds good to me, said Friend Wife. let's get some bees. Where do people get bees, they began asking their friends. Nobody knew. At last, at the State Fair, the lady found a beekeeper exhibiting his

dead beekeeper's family and found a fourteen-year-old son who would sell him a hive of bees for \$5.00. Thus he became a sideline beekeeper.

To such good purpose had Friend Wife read Gleanings all winter that on first opening this hive, the first one that either of them had ever seen the inside of, they found their queen; and the lady clipped her. Soon two of them were reading. That summer they had a swarm—100% increase. Year after year they increased a little. And when they had reached the noble proportion of 50 hives, they made a division. These shall be yours and these mine, they said to



The bees in the keg stored about 75 pounds of honey. But the tall one was the banner hive.

one another. The man, however, worked in an office all day. So he took the smaller half. These he works on Saturday afternoons, weather permitting, or Sunday mornings.

One of his interesting experiences was when, against the advice of Friend Wife, he bought a colony of bees from a negro man. They were in a "kaig," and he brought them to the yard one night, in a sack. Then closed the entrance by tacking a piece of roofing tight across it. He fitted an old bottom-board over the top and set thereon a shallow super. Then another—and another. The bees stored 75 pounds of beautiful white honey in his supers. But he did not succeed in getting his shy, elusive queen to occupy them, as he had planned. So one bright day in midsummer, with his permission and several assistants, Friend Wife transferred them for him in strictly orthodox style.

His bee work means much to him, says Mr. Allen. (Yes, his name happens to be Allen, too—and a very fine, rare man he is—and his bees are on Abbott Road in Davidson County, Tennessee.) They bring him some financial return of course; but out of all proportion to this or to the work put in, they bring him recreation after long hours in an office, and provide him with an absorbing out-of-door interest. He is thoroughly progressive in his methods, though his limited time necessarily forces him into many short cuts. For, in addition to taking complete charge of his own hives, he courteously assists his wife with hers when supers get heavy. He works hard when he works, but he also spends many a pleasant hour of relaxation among his bees.



"Friend Wife's" banner hive came out second.

wares. Will you sell me some bees, she asked. I will do anything I can for you, he answered; I will take a quarter from you and send you a trial subscription to Gleanings (whatever that is, murmured the lady); but I cannot sell you any bees. That was in September.

All winter long, though she had never seen the inside of a beehive, the lady read Gleanings. She had no idea what manner of thing a brood-chamber might be, or a ripe cell, or a shook swarm, or a queen-excluder. Like Sanskrit sounded such phrases as laying workers, foul brood, royal jelly, failing queen. But she read on—it was what she had spent her quarter for. And at last, just as winter was leaving the earth, the man remembered having once known, long ago, a man who had talked about bees and died. So he looked up the



FROM NORTH, EAST, WEST AND SOUTH



In Southern California.—The month of May was probably one of the busiest months ever experienced by southern California beekeepers. Especially was this true of the latter half of the month. Extracting began about May 20, with most beekeepers who had bees that had access to the sage and orange. Many beekeepers report bees flying to the black sage and ignoring the orange, when in reach of both. Other localities where the orange was the only source of honey report a very light surplus or none at all. The sages are yielding very well and will likely continue throughout the month of June, weather conditions remaining favorable. All in all, the prospects are good for an average crop of honey in southern California.

Prices of honey are not fixed yet, many beekeepers preferring to wait until the entire crop is made before selling. Buyers have not seemed at all anxious to rush things, although several inquiries have been received, with purchasers wishing to know what the producer would sell for. The orange honey crop is sure to be a short one this season and should command the top market price.

Reports from an old resident of Ventura County, in the Western Honey Bee, are very discouraging for that locality. One large producer in Riverside County wrote two weeks ago that it looked to him like a two-case crop (240 pounds) per colony. But this man is an exceptional beekeeper and will produce nearly twice the general average almost any year.

Disease is well under control, and in only a few instances has it proven a serious obstruction to honey production. Utah beekeepers, who annually ship north after the orange flow is over, are getting ready to migrate from the eighth to the fifteenth of June. They are to ship mostly increase made this year, with all young queens and principally newly drawn combs and new hives and equipment. Nuclei that were drawn out a month ago are now quite good colonies, and the colonies from which they were drawn are apparently as good as any in the yard. Some beekeepers claim that they can make 100 per cent increase and still get the honey crop, and with good strong colonies it seems to be possible. This has proven to be one of those seasons where it was profitable to have a large supply of drawn combs on hand. Many colonies have filled three, four and as many as five supers with nectar before any were capped and ready to extract.

The writer heard a very entertaining and educational talk at a Knight Templar meeting on the subject, "What is it all about, anyhow?" When we see a picture, as we did today in a bee journal, illustrating a beginner's outfit, in which is a beehive con-

taining frames with one-inch starters of foundation, it makes us wonder what all of this talk of full sheets of foundation is about, anyhow. With our years of experience trying to weed out all of the drone comb we can, and then to teach beginners to use starters—to say the least, "Is it consistent?" L. L. Andrews.

Corona, Calif.

* * *

In Oregon.—The general indications are now that there will be a normal, if not better than normal, honey crop in the Northwest. In spite of the fact that there was a very heavy winter loss and a very late spring, the bees have built up fast in the last month and are in exceptionally good condition for clover in the valley. The honey flow from maple, fruit blooms and dandelions came almost simultaneously during late April and early May, and, as a result, many of the stronger colonies stored considerable surplus beyond their needs and have built up in nice shape for later honey flows.

The attention of all beekeepers in the Northwest has been called to the summer field meetings which are to be held as follows: June 15, North Idaho and Spokane district; June 17, Yakima district; June 20, Northwestern Washington; June 22, Southwestern Washington; June 24, Portland; June 27, Albany; June 29, Redmond; July 1, Hermiston; July 3, Ontario (?).

Arrangement has been made whereby it is expected that several out-of-the-state speakers will take in the series of summer field meetings.

There seems to be very little honey on the market and the price is holding up well. With the general business condition getting back to normal, it is probable that next year's honey crop, though likely large, will move in a normal way.

Corvallis, Ore.

H. A. Scullen.

* * *

In Wisconsin.—As shown by other reports, a rather high per cent of colonies was lost during the past winter. However, it should be noted that this situation was more or less local. The beekeepers in the northern half of the state did not suffer as serious losses as those further south. All reports indicate that on June first the bees were in better than normal condition, most colonies having reared an abundance of brood. The clover was rather badly injured in the southern part of the state, and this may cause production to be below normal.

Present indications are that the nectar-secreting plants in the northern part of the state are in prime condition, and, as we have had an abundance of rain, our northern beekeepers should get a bumper crop. It is interesting to note that white clover is



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blooming profusely at this time, which is two weeks ahead of normal. Flower buds on basswood are quite large, and it is likely that the bloom in the vicinity of Madison will come on before the first of July.

There is little local movement of honey at this time, and a few beekeepers still have from 500 to several thousand pounds to dispose of. In spite of the beekeeping slump of last year, most of our beekeepers are attending the local meetings, and the attendance this year is considerably better than was the case in 1921. H. F. Wilson.

Madison, Wis.

* * *

In Texas.—The weather of April and May has been as extremely wet as that of February and March was dry. With the rains came cold northers and continued cloudy weather. Some beekeepers lost colonies in the flood, and hardly an apiary escaped heavy loss from chilled brood. The only men not reporting large amounts of chilled broods are those who did not examine their bees during this time. While the loss of bees was great, it was offset by a much improved condition of the honey plants. Horsemint and gailardia, which promised nothing, so far recovered as to give fair flows. Mexican persimmon, guaucan and valley sage were better than usual. Huajilla was killed back by frosts in March and made about one-fourth of a crop. For the first time in many years the mesquite gave a fair yield from the April bloom. Reports from over the state show the crop to date to be very spotted, some localities showing above normal and others having nothing at all. Conditions at present are such that no prediction can be made on future honey flows.

As stated in this column three months ago, the writer is in the process of establishing an experimental bee laboratory near San Antonio. This will be the headquarters for all bee work done under the State Experiment Station. As this work was formerly done at College Station, the change of location calls for the moving of all the bees and laboratory equipment and the construction of suitable buildings. The bees were moved in April by truck. The distance to be hauled is about 175 miles, but because of floods over 500 miles had to be covered to make the trip. The bees were caged four and one-half days and had the rough ride of their lives; but, strange as it may seem, only a few combs were broken down and few bees and no queens were lost. The first time the writer feels funny he expects to write a dissertation on being stuck in the mud with a truck-load of bees and 200 miles of mud ahead.

One of the prominent beekeepers of southwest Texas has always said: "When the Mexican persimmon blooms we have a cats-

claw honey flow." The above statement was true this spring. Large amounts of the early spring honey, which is commonly to come from huajilla, this year came from valley sage, guaucan and Mexican persimmon. Where the bees were in good condition some large averages were taken very early. One party took 40 lbs. average from 250 colonies on April 23. Another, 27 lbs. from 100 on April 18. Were it not for cloudy weather and rain, a crop could be obtained every year from these early blooming plants. It costs little to keep the bees in good condition; and if an extra 20 lbs. of bulk comb is added to the crop but once in five years, it will pay for the work.

From the advertisements it appears that there is an epidemic of price-cutting when it comes to queens. The men who sell queens at 65 cents a head certainly do not make much. The prices on the queens raised in the state yard are going the other way. In the coming year they will probably be double the price asked now. The queens are the excess produced in experiments in selection of heavy honey-producing strains. The result obtained are such and the demand large enough to warrant the change of price next season.

San Antonio, Texas. H. B. Parks.

* * *

In Arizona.—The months of April and May have proven as favorable as was hoped for in southern Arizona, with the result that colonies have come through the critical spring period in generally good condition. Catsclaw and mesquite began to blossom about Tucson by the middle of May and now (June 6) both are in full bloom. The bees are working both plants for nectar, but are much more abundant on the catsclaw, indicating a probability that the honey will be of good quality, somewhat above the average for the so-called mesquite honey. Mesquite honey, in the writer's opinion, is practically always a mixture from these two most abundant and important native sources of nectar, the relative amount of each in the mixture varying with the season. In addition to the fact that bees are working more on catsclaw, it is a very noticeable fact that this plant is blossoming much more profusely this season than is the mesquite.

Conditions within the hives indicate a good flow in quantity and bear out the above-mentioned probability as to quality. Local supplies of old honey are about cleaned up, and new honey is appearing on the local market. Some of this is light amber, evidencing a mixture of early wild flower or mesquite nectar, while some is nearly white, the latter doubtless derived almost wholly from catsclaw. Market conditions appear to be favorable.

Tucson, Ariz.

Chas T. Vorhies.



FROM NORTH, EAST, WEST AND SOUTH



In Utah.—In northern Utah and southern Idaho the winter was much more severe than usual; deep snow and continued cold lasted for months, and the winter loss of bees was greater than last year. Spring was late but opened very favorably for the bees, fruit, dandelion and willow blooming profusely and yielding well. Swarming began in May, but the weather turned dry and cool about the twenty-fifth of the month, so we are now having a lean spell during the interim between the spring bloom and alfalfa, which will be on in ten days more.

There is not so much sweet clover as last season; but the alfalfa weevil seems to have worn itself out, so the condition and acreage of alfalfa are at least 120% above the last five-year average.

The law in Utah, compelling people to keep their bees in modern hives, is being enforced, and many box-hive men are selling their old box hives at \$2 each, rather than buy supplies at the present price. This will help to remove the menace from American foul brood.

Last year's honey crop seems well cleaned up in this section of the country. There is some local inquiry even this early. Our local markets have greatly improved since the war. I have a local market that will take at least 20 tons.

M. A. Gill.

Hyrum, Utah.

* * *

In Indiana.—Since writing the last time and giving such emphatic warning to every one that they must feed or lose their bees, conditions have taken a turn for the better, and the fellow who depended on luck and didn't feed his bees came out all right after all, for we have had the most favorable spring I have ever seen in Indiana for building up weak colonies and favorable also for colonies short of stores.

The failure of the pollen early in the season caused brood-rearing to begin late; but, when the peach orchards in this part came into bloom, brood-rearing came on with a rush and colonies are in splendid condition. Everything seemed to yield nectar this spring—peaches, pears, apples, tupelo and the tulip tree; but, when the time came for the bloom of alsike and white clover, these refused to give up their nectar in more than a light stimulative flow.

The aphids are extremely bad in the orchards, and the oak trees are covered with them. We therefore had a steadily stimulative flow from honeydew. Many who keep colonies in the regular single-story eight-frame hive report from 75 to 90 per cent swarming. My Jumbo hives or two-story ten-frame have cast no swarms except one or two superseding ones. Sweet clover is just coming into bloom, and it prom-

ises the best crop in years. Those who have managed their bees properly and kept down swarming, have colonies exceptionally strong. However few have done this.

I am running a small outyard about three miles away where there are several hundred acres of sweet clover, grown for seed. Some of the colonies were so strong that it was necessary to put on three supers before any honey was coming in, but now that the flow is on it keeps one busy putting on supers. If the weather is as favorable as it promises, I shall have more to say later about this experimental outyard. So far the weather has been ideal in every respect for the growth of smartweed, and the prospect is bright for a big crop, although a few weeks of hot, dry weather in July and August can change this prospect very suddenly.

There are a few trial patches of Hubam clover which the beekeepers in this vicinity are watching with interest. As it has had so much said both for and against it, we all want to see for ourselves. The question of overstocking is one of the most baffling of all questions. As far as I can tell at present, my bees in the home yard seem to be working as well on the sweet clover in a field three miles away as the ones are that I have moved right down in the center. The ones in the field certainly have a big advantage over those that have to carry it three miles if they only know it; but many of them seem to think there is better picking a couple of miles away, for they circle high in the air and start off as though going on a long journey. Some will turn down a 300-acre patch of sweet clover dripping with nectar, right close to their hives, and fly three miles to get a little pollen from a seed onion! If I could have my way, things would not be thus; but if I could, what would we do for onions?

Vincennes, Ind.

Jay Smith.

* * *

In Michigan.—As this is written the prospect for a large honey crop in northern Michigan was never better; however it is a matter of rain, winds and sunshine, as our early prospects are nearly always good. The season is somewhat earlier and the bloom abundant, with scale colonies showing 10 to 12 pounds per day, and good weather should give us a good white-honey crop.

The last year's crop has all been sold, and the market should be strong for the first white-comb honey, as only odds and ends of combs, principally dark, are in the stocks of the merchants. The demand for extracted honey follows the comb a few weeks later and extends through the winter.

I can see no reason why beekeepers should not get the price the last of 1921 white stock sold for. White sugar is low in price and



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glucose also very low—who wants to feed their families on these to take the place of honey? We buy an orange for the flavor, not for the little sweet it contains, and so we buy honey for its superior flavor and healthfulness. It's up to the beekeepers. Let's be wise enough to prove value in honey and ask a fair price for it.

At this time many do not super the bees sufficiently. Our honey flow lasts well into July, and the bees must have plenty of room to do their best; but, as the flow wanes, comb-honey producers should manipulate supers to get them finished.

Heavy supering at the near close of the flow will be as disastrous as insufficient supering at its height. Northern Michigan counties are quarantined against moving bees in or out of the counties—for the control and eradication of brood diseases.

Co-operation of the beekeepers will hasten results. Let's do our part or it will eventually be our funeral. A fine and quick way to clean thoroughly and disinfect a hive-body is to paint the inside and edges with a solution of half kerosene and half gasoline and quickly touch a match to it, and then apply paint to the outside.

East Jordan, Mich. Ira D. Bartlett.

* * *

In Pennsylvania.—The honey crop prospects for the state are good. Abundant rain and warm weather recently have put plant life in prime condition. White, alsike and red clovers are in bloom in most of the state at the time this article is being written (June 5). As usual, many colonies are not ready for the honey flow because of bad wintering among the farmer-beekeepers especially, and swarming is in progress, which will cut down the yield. The usual amount of buckwheat will be sown. Ground is being prepared now for sowing late in June. Wild plants, like huckleberry, raspberry, blackberry and sumac, generally escaped the May frosts and are in the best of condition.

The coal strike and general depression in industry are bound to have a depressing influence on the markets unless there is a rapid recovery in late summer. Pennsylvania depends more upon industry than agriculture, and this condition at present is not good. Beekeepers should plan to obtain the best honey crop possible, and then plan as well to market every ounce of it in their home town to the best advantage that they can. To dump it on the wholesale markets this year will be worse folly than ever.

The extension work is resulting in more county associations, and here is an opportunity for beekeepers to get together on their marketing problems. Geo. H. Rea.

State College, Pa.

In New York.—The condition of the bees is exceedingly good. This section has just experienced the best honey flow from fruit blossoms and dandelions that has ever been known and early swarming has been very prevalent. Natural swarming during May probably more than made good all winter losses in this state.

Clover is beginning to yield a little, but there is very little of it in most localities in this region. We expect that the small apiaries will have the advantage over larger ones on account of the limited amount of clover.

Vetch is becoming an important honey plant in our locality, many acres being raised for cover-crops and seed. That grown for a cover-crop is generally worked under before yielding much nectar, but that grown for seed furnishes a good supply of light amber honey.

The Western New York Honey Producers' Association will hold its midsummer meeting at the apiary of J. B. Howe, Delevan, Cattaraugus County, on Tuesday, August 1. A good time is assured.

H. M. Myers.
Ransomville, N. Y.

* * *

In Louisiana.—Following the fine weather of the early spring, the conditions here are not as good as were first expected. This is caused by the continued rains in some parts of our state.

During the willow bloom, the bees stored more honey this year than for the past three years. In a very strong colony here at the University the actual amount of honey stored from willow for a period of 14 days was 140 pounds, merging into the white clover flow which for seven days more continued to bring in ten pounds per day, making a total in 21 days of 210 pounds. Since this time the weather conditions have been unfavorable.

The willow is very abundant along the streams in the central-southern portion of the state, and it is a very easy matter to produce 100 pounds per colony if your bees are in reach of same. The willow blooms early; therefore to get this large amount of honey, your bees must be in the best of condition and strong in numbers.

There is not a more delicious honey than that made from the willow. The color is white with a slight greenish tinge. In fact, it looks like rain water, and the flavor is so mild that it may easily be used for sweetening tea or coffee without imparting any strong taste, as is usually the case with most honeys. For comb-honey production it makes a very beautiful section, with cap-pings feathery white.

The white clover is constantly at work now manufacturing the delicious nectar for the bees. This honey flow ceases about July



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1 after having had a run of about 100 days.

The crop of honey produced so far is very fine and very beautiful. There are hundreds of consumers in the towns close to you, who will be willing and anxious to pay you a reasonable price for your output. But don't make the mistake of so many, that is, putting the price too high. Make it reasonable, and yet profitable to you. Put your honey up in attractive jars; avoid green jars, always select white ones, and you will find you can sell every pound your bees will make for you. Make a honey market at home first. Wait until the "little" beekeeper disposes of his honey, as he usually sells his crop for nothing almost. This merely baits the customer for more, and you come along and reap the harvest.

Baton Rouge, La.

E. C. Davis.

* * *

In North Carolina.—Beekeepers in this state are most probably realizing barely a normal crop of honey in spite of the fact that early spring conditions indicated that a really "bumper" crop was in store and practically assured. This is due to continued rains the past month, that have dissipated the nectar in the flora and kept the bees from working the pasturage that gave promise of being exceptionally rich this season.

Frosts did very little damage, although some flora was killed in the Washington and Terra Ceia sections of the coastal portion of the state and in the mountains. The yield of gallberry honey was mostly cut off by the rains. However, there was probably a two weeks' good work with little interruption, particularly in the southeastern section of the state (the lower Cape Fear region). The holly, tupelo and black gums of the swamp sections of east Carolina netted a good crop, thanks to fair weather conditions that prevailed during the periods of their bloom. However, there were cold snaps and rains that set these yields back considerably.

Thanks to the abundant nectar that has been available for the bees "between showers" in this southeastern section of the state, bees generally, including those that came through the winter in poor condition this spring due to the very "lean" conditions last season, have built up wonderfully, and all will evidently be in condition to net the richest possible returns from fall flowers the prospects of which are exceptionally good.

Beekeepers are now marketing their section honey principally, doing this largely through local grocery stores. The price to grocers seems to be most generally 20 to 25 cents per section, with the retail price around 30 cents. Extracted honey has scarcely begun to move yet. In fact, the

bees in practically every section of the state will have two to four weeks more of fair honey-flow possibilities, although the main flows are about over in most of the eastern section where wild flora is the main stay.

Wilmington, N. C.

W. J. Martin.

* * *

In Florida.—One of the best palmetto flows that this part of Florida has ever known has just closed. The beekeepers, however, have not been able to take full advantage of it, due to the weak condition of their colonies. The earlier part of the honey flow did not fill the supers as rapidly as it should.

The cabbage palmetto is in full bloom now, and in the next ten days or two weeks it will be through. It is supplying, but little nectar and no pollen, due to the myriads of thrips that are attacking the flowers. This same minute insect attacks the scrub palmetto blossoms and destroys them. When this happens the beekeepers down here call the trouble "blight," and they say the cabbage palmetto is more often "blighted" than the scrub palmetto. The facts are that usually the thrips are not present in sufficient strength to destroy the scrub palmetto bloom, but they develop upon them and then migrate to the cabbage palmetto in such numbers as to destroy it completely.

The rains started about the middle of May in earnest—the first rains we have had in seven months that were sufficient to wet the ground. In the lower Keys everything was at a standstill, and many trees were delayed several weeks in blooming. There was no honey being stored, and the bees were almost down to starvation rations. Now everything is blooming heavily. The lime and other citrus trees are a mass of white, and the dogwood, mastie, black mangrove and several others, I have not yet been able to identify, are a mass of bloom. All of these except the black mangrove should have finished their period of bloom by the first of May.

I have just returned from a trip to the bees on the lower Keys, and I found on many hives a full super of foundation drawn and filled to overflowing with green nectar, not a single cell being capped. This will give some idea of how the honey is now coming in, and we hope nothing will occur to check it for the next four or five weeks.

On the upper Keys the bees have been suffering from a shortage of pollen for the past month, and it has been necessary to feed them rye flour as a substitute. The shortage of pollen is one of the most serious problems of the beekeeper in the tropics, and it is one that is seldom realized. This shortage accounts for many troubles with which the tropical beekeeper has to contend. The reason that it is so seldom



FROM NORTH, EAST, WEST AND SOUTH



recognized as the cause is, that there is an abundance of bloom, but it is bloom that produces so little pollen that the bees can get practically none of it. Then, again, the frequent showers wash out the pollen from many plants before the bees are able to secure it. The most abundant pollen-producers are the flowers in which the pollen is most exposed to the rains:

In a preceding article the excessive loss of queens was mentioned. One cause of this is the lack of pollen. It may not be the only cause, but it is one of the principal ones. Later, I hope to take up, in a more extensive article, the subject of pollen in relation to tropical beekeeping.

The checking of brood-rearing just when it is most desirable is another result, and sometimes right in the height of a honey flow. This is especially true during the black mangrove flow, as this tree provides no pollen available for the bees and there are seldom any other plants in bloom at the same period which do provide it. If the bees are short of pollen stores at this time brood-rearing ceases and workers begin to loaf in the hive and to die at a rate that leaves them piled on the bottom-boards. The effect is similar to a bad attack of disappearing disease or paralysis; but this will clear up in less than 48 hours, if a substitute pollen is fed them, and work immediately becomes normal again.

Brood will be found dead in all the hives short of pollen stores. It resembles very closely European foul brood, but it quickly clears very soon after pollen is available. The writer has cured in less than a week frequent cases, that in the clover region would be pronounced a bad case of European foul brood, by giving a comb well supplied with pollen. (This is not suggested as a new cure for foul brood, however.)

The beekeeper who migrates from the northern states to tropical locations should inform himself on the pollen-producing flora as well as on the nectar-producing. There are many places in the tropics where pollen-producers are too few, and everywhere there are periods when none are available. C. E. Bartholomew.

Key Biscayne, Fla.

* * *

In Ontario.—At this date (June 9) our section of the country has been visited with very heavy rains and the ground is thoroughly soaked. Alsike is looking fine and is in bloom about 10 days earlier than usual. Although we have had seemingly ideal weather for nectar secretion, yet little has been gathered, and at some of our yards we have had to feed between fruit bloom and clover. But the season is young yet, and, with clover looking so well and so much moisture in the ground,

I still look for a crop of clover honey even if things have been slow so far. This applies to apiaries in York, Ontario and Wentworth counties; but, for some reason or other, things are altogether different in Simcoe County, where we have two large apiaries. There the bees are very far advanced, and it is necessary to extract quite a quantity of honey from willows and dandelion to get it away from the clover that has started to yield up there already.

With so much rain here at the home section, a heavy buckwheat acreage is assured, as the ground is now in fine shape for working up into a nice seed bed for this plant.

Foul brood is bad enough in any form—no one familiar with the diseases bearing that name will dispute such a statement for a moment. But when one has the two brands to combat with all the time, as we have in our York County yards, “bad enough” is hardly expressive enough. European foul brood is a nuisance, while the American brand is much worse so far as a cause of actual loss of good supplies is concerned. We would have little dread of the European here any more if we had not the American in the locality as well; but the having both diseases present in a locality complicates matters very much and adds at least 50 per cent more to the general work of an apiary. This spring we have found in our eight apiaries at the home center about 25 cases of the European, most of them mild while some were bad enough. All were dequeened and left queenless for eight or ten days and then a queen given again. In two cases, after young queens had been introduced, I found a few scales of the American, showing that while these colonies had been afflicted with the European quite badly they also had a few cells of the American which had been overlooked. Indeed it is very easy to overlook a few cells of American foul brood in a colony when there are some hundreds of larvae dead from the European form. Of course all our work was for naught so far as these two colonies are concerned.

Apiarists living in localities where no brood diseases are present do not really appreciate what they have to be thankful for; and, as I think of how we had things here some 10 years ago before foul brood showed up here, I am made to think of the old saying, “You never miss the water till the well goes dry.”

I have heard nothing concerning the proposed co-operative movement for some time, and at this late date it looks doubtful as to whether the organization can be perfected in time to function, so far as this year's crop is concerned. Secretary Millen reports a very heavy business in containers, etc., as a starter. J.L.Byer.

Markham, Ont.

HEADS OF GRAIN FROM DIFFERENT FIELDS

Making Increase When Removing Surplus Honey. The following plan for making increase without reducing the honey crop has been tried out in

Ontario and found to give good results:

During the spring, the usual precautions for swarm control and colony development are taken. After the main honey flow has been on long enough for the first super to be completed and the second one in a condition to warrant putting on a third, the beekeeper, who has either raised queens beforehand or ordered them from a breeder, sets a hive with foundation or preferably drawn comb to one side of the colony he wishes to increase. He then removes the supers of honey and takes three or four frames of brood with adhering bees from the parent colony and places them in the new hive, being careful not to get the queen on these combs. These combs of brood are replaced by foundation or drawn comb in the parent colony. A Porter bee-escape is then placed over the new hive, and the super or supers that are ready to be extracted, are placed over it. The immediate result is that the bees in the brood-chamber soon find they are queenless; and, as soon as this condition is realized by the bees above the brood-chamber, they come down through the bee-escape more readily. Any field bees that leave the hive go back to the original colony to carry on without interruption the nectar-gathering. The following morning a new queen is introduced by the cage method to the queenless colony and the honey lifted off, ready for extracting.

This plan for making increase has the following advantages: The parent colony is not robbed of its field bees; the bees leave the supers over the escape board more readily; the bees in the new colony, all being young, accept a queen more readily; this honey is being taken off at a time when the bees are not cross, as the honey flow is still on; in the fall the two colonies will both be in good condition for wintering; it releases a number of supers for an increased flow of honey.

H. D. Clark.

Medina, Ohio.

Advantages of a Hive on Scales. That honey seasons are variable in our northern states was evident this

past season; never before in our nearly 50 years' experience with bees have we had a honeyflow from flowers (not from the aphids) during September. We were busy with the honey we had harvested, crating and shipping it. We hurried to get it into market, as it was wanted, and for this reason our bees were not watched. Some colonies built comb on the outside of their hive; some under their hive or in any old place.

We might have secured quite a bit of amber honey at this time, had we been on our guard. Possibly a hive on scales, if some attention had been paid to it, would have given us a pointer. I have decided that in the future this matter is to be made a feature of our beekeeping. We may never again have such a season, and we may; or some other peculiar thing may develop, and the hive on scales may put us on our guard. Let us plan for it, friends.

F. Greiner.

Naples, N. Y.

Five Hundred Pounds From One Colony, Spring Count. I just read the account in the Grand Forks Herald of Mr.

Bennett's bees and

I think I have almost as good a record for last year. I had only one colony in the spring of 1921. The first swarm came off June 12, the second June 16, and a third June 20. The third one we put back catching the queen, and then cut out the rest of the queen-cells of which there were 13, counting the ones from which the queens had emerged.

I kept the record from each hive of the honey taken off, and the second swarm produce 160 pounds of surplus honey. Altogether we took off over 500 pounds, or an average of 175 pounds to the hive, the most of this being the best grade of white clover honey.

I am going to high school and take care of the bees on Saturdays. One hive is ready to swarm now. We are trying to keep the other two from swarming by using the double-chamber method.

Sidney E. Kirk.

Niagara, N. D.

Quit Burning Your Trousers. My wife maintains with some asperity that I have

scoreched and burned holes in more pairs of pants, overalls and coveralls (vulgarly known as elephant breeches) than any other living beekeeper. I have a habit of holding my smoker betwixt my legs while I use my hands in working with the hive. If any of you fathers in Israel can prove an alibi in this case, speak right up in meeting. You get the "pup."

But, brother, if you must plead guilty, do it like a man and go and sin no more. Take a five-pound friction-top honey can, without the cover. With a pair of tin snips cut a strip three inches wide from top to bottom of the can. Slip the can up over your smoker and secure it above the brace which holds the fire pot to the bellows by means of a wire—and there you are. This shield will restore peace in your family, as your pants will never again have to be patched, in that quarter at least. And if you are real anxious to avoid even the

HEADS OF GRAIN FROM DIFFERENT FIELDS

suggestion of evil, why, just put a sheet of asbestos paper between the can and the smoker furnace and then you will thank me for this suggestion. W. E. Woodruff.

Clemenceau, Ariz.

Good Prospects White clover began to bloom on May 22, owing to an abundance of moisture in the ground. The prospects now are good for a heavy flow from white clover.

An abundance of both Hubam and bien-nial sweet clover is planted in this vicinity. There are fully 100 acres within two and a half miles of me, planted mostly for pasture.

I never before saw so much brood in hives in May, owing to a very heavy flow from fruit and dandelion. Returning from the hospital I found everything honey and brood bound, and am only now getting things straightened out.

Honey prices are going to be a problem the coming season, and it is not too early to begin to adjust prices. I do not believe there is any reason why honey should sell for less than 10c a pound. I am still getting 20c retail. A. F. Bonney.

Buckgrove, Iowa.

Importance of Doing the Work That Counts. It's not so much the amount of work done in the apiary but doing it intelligently and at the proper time that counts. Such things as supplying more surplus room, introducing young queens, giving the queens plenty of combs to occupy, supplying plenty of stores when needed and many more little details, done intelligently and at the right time—all these count. Young beekeepers are fast coming to the front by observing the above rules and doing things systematically.

East Avon, N. Y.

A. C. Gilbert.

A Good Hive Scraper. The best scraper I have ever tried for cleaning covers, bottoms, etc., is a common three-cornered scraping tool used by butchers in cleaning meat blocks. No two edges have the same angle with the handle, so it will push, thrust or pull and get into all corners. I. W. Cameron.

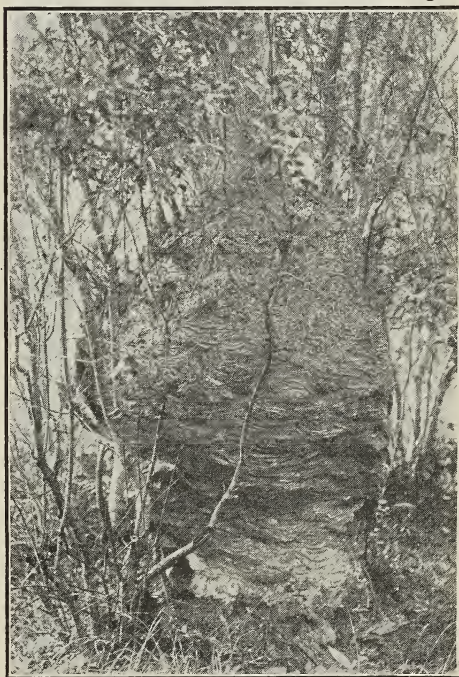
Davis, S. D.

Simplified Queen-Rearing at Close of Honey Flow. Here is an easy way to get a few good queens at the close of the honey flow: Place a frame with a half sheet of foundation in the middle of the nucleus (or colony) having your

best queen, leaving it there for one week. Take out the frame, now filled with eggs and young larvae, go to a strong colony which has supers tiered up for extracting, with a queen-excluder in place. Put the frame with the eggs and young larvae in the middle of the super and place the super on the bottom-board, removing the brood-chamber (old hive) to a new location. The bees will rear some fine queen-cells which should, of course, be cut out in time to save them. Axel Holst.

St. Thomas, Virgin Islands.

Wasp Nest Taller Than a Man. This wasp skyscraper was found in the wilds of Florida. The nest is six and a half feet in height and ten and a half feet in circumference. It is made of a material closely resembling paper, which at a short distance is hard to tell from clay. It



apparently housed at the start about a hundred colonies, as we killed about that many queens. R. C. Sheaffer.

Sanford, Fla.

[The number of queens would not prove the number of colonies, since among the social wasps, the males and workers die in the fall and only the queens survive the winter. Accordingly in the fall there would be many queens in a colony.—Editor.]

QUESTION.—If I install an electric motor having a speed of about 1700 R.P.M. to run my Buckeye extractor, is it practical to obtain the necessary seven-to-one reduction in one set of pulleys or is a countershaft necessary?

Wisconsin.

Answer by H. H. Root.—You can accomplish this in one reduction, putting a two-inch pulley on your motor and a fourteen-inch pulley on your extractor shaft. Some do this, but it does not get the full efficiency of the motor, owing to the sharp bend of the belt around so small a pulley. You may be able to purchase a special low-speed motor for this purpose. Really the most satisfactory way is to accomplish your reduction by using a jack shaft, possibly on the ceiling. By this plan you do not have to have your belt so tight, you really get more efficiency out of your motor, and you do not have to have a large pulley on the extractor shaft, which frequently is considerably in the way.

Work of Bee Moth Larvae.

Question.—The bee moths have gotten into my bees and are killing them. What can I do to get rid of them?

Ohio.

Answer.—The larvae of the wax moths do not attack strong colonies of Italian bees. They usually enter the hive after the colony has become weakened from some other cause such as queenlessness, lack of stores or one of the brood diseases. It will be well for you to examine the combs carefully to see if the colony is queenless, or to see if there is any indication of brood disease. If you find any dead or discolored larvae in the brood-combs, it will be well to cut out a piece of comb containing these dead larvae and send it for examination to Dr. E. F. Phillips, Bureau of Entomology, Washington, D. C.

Building Up Two-Frame Nuclei for Winter.

Question.—Will a two-frame nucleus made in the middle of July build up strong enough for winter without any help?

Indiana.

Answer.—Yes, if it has sufficient food at all times. Unless there is a fall honey flow a two-frame nucleus made after the middle of this month would have to be fed enough so that there is at all times a supply of food in the hive in order to keep up brood-rearing during late summer. If there is a fall honey flow sufficient in amount, of course feeding would not be necessary.

Different Classes of Queens.

Question.—What is the meaning of tested, untested, select tested and select untested as applied to queens?

Maryland.

Answer.—A tested queen is one which has been kept long enough for some of her

GLEANED BY ASKING

Geo. S. Demuth

young bees to emerge in order that the breeder, judging from her offspring, can be sure that she is purely mated. An untested queen is one that is tak-

out of the hive and sent to a customer within less than three weeks after she began to lay, and is therefore not tested as to purity of mating. Select tested and select untested queens are simply the finest in appearance of their respective classes.

Requeening Without Dequeening.

Question.—If a queen-cell is given in a spiral-cell protector to a queenright colony, what will be the result?

Nebraska.

Answer.—The young queen will usually be killed soon after she emerges. Occasionally the bees will accept the young queen, permitting her to supersede the old one, but this cannot be depended upon as a method of requeening.

Queen Lays Eggs on Side of Cells.

Question.—What is wrong with the queen when she lays her eggs on the side of the cell instead of on the base?

Ohio.

Answer.—Sometimes young queens deposit their eggs irregularly for the first few days and afterward lay normally. Queens that continue to lay their eggs on the side of the cells are imperfect in some respect and should be replaced.

When and How Often to Requeen.

Question.—When is the best time to requeen any colonies and how often should I requeen them?

North Carolina.

J. L. Murray.

Answer.—In many locations, the best time to requeen is near the close of the early honey flow. If this is done before the honey flow ceases it is much easier to work with the bees than when nectar becomes scarce; and a young queen that begins to lay in July or August will lay more eggs in September than an old queen, thus making a better colony for winter on account of the abundance of young bees. In localities where the fall honey flow begins early in August, this would be a good time to requeen; but the young queen should begin to lay not less than six or eight weeks before brood-rearing ceases in the fall, for this much time is needed to furnish sufficient young bees for winter.

Sealing Honey at Close of Season.

Question.—Will the bees seal the honey that is not quite finished at the close of the honey flow?

Missouri.

S. M. Wilkman.

Answer.—They will not seal all of it even if the supers are left on several weeks after the close of the honey flow. For extracted honey it does not matter if it is not all sealed, but it should be left on long enough so that it will be thoroughly ripened. For comb honey it is important to have as many

sections sealed as possible. This can be accomplished by taking off the partly finished supers, sorting out the unfinished ones and putting them back to be finished. When the unfinished sections are put back, those nearest completion should be put in the middle of the super. This should be done as the honey flow is closing if possible.

Bees Build Combs on Outside of Hive.

Question.—Why did one of my colonies build comb outside the hive below the bottom last year? Virginia.

Walter Steen.

Answer.—The bees build comb on the outside of the hive because they did not have room enough inside to store all the honey they gathered. When they are compelled to build comb on the outside of the hive in this way, they store much less than if more supers had been given, for such crowding causes a stagnation of work. For this reason it is extremely important during the honey flow to see that every colony has at all times either some empty combs or some foundation to work on in the supers.

Bees Fail to Store Surplus.

Question.—Why did my bees fail to store surplus honey last season when there are no other bees around and we have flowers for them to work on?

Mrs. Oline P. Root.

Ohio.

Answer.—There are so many possible reasons for the bees failing to store surplus honey that without having seen the colony one can only guess at the trouble. Generally speaking, there are two reasons for failure to store surplus honey: first, a failure of the season because of a lack of nectar-bearing flowers or because of unfavorable weather conditions during their period of bloom; and, second, a failure in the management, so that the colonies are either not strong enough at the time of the honey flow or some condition in the management has been unfavorable, such as not giving the supers early enough or providing for the comfort of the bees.

Not all flowers are nectar-bearing, and only a comparatively few species can be depended upon to furnish enough nectar for surplus honey.

Cleaning Extractor after Extracting from Diseased Colonies.

Question.—To render it safe for use, how can I clean an extractor that has been used in extracting combs of honey from colonies having American foul brood?

John Knapp.

Michigan.

Answer.—The important thing to do is to wash the extractor thoroughly so there is not a particle of honey left on it anywhere. When this is done it should be safe to use in extracting honey from healthy colonies.

Bees Suddenly Become Cross.

Question.—Can you explain why bees become so viciously cross all of a sudden when at other times they are gentle?

D. B. Clapp.

North Carolina.

Answer.—The temper of the bees depends largely upon the character of the honey flow. Where there is an abundance of nec-

tar available during most of the day the bees are usually good-natured, but if nectar is available only a part of each day the bees are liable to become cross when the flowers quit yielding. When the honey flow closes suddenly the bees are usually cross. As the season advances the bees are apparently more inclined to sting than early in the season. Beginners especially should bear these things in mind and use more precautions against stinging when the flowers are not yielding and as the season advances.

Bees Quit Working in Supers.

Question.—Last season when the bees had their sections almost ready to cap they suddenly began to hang out as though they were going to swarm, but they did not swarm, neither did they finish the sections. What was the trouble?

Indiana.

Pearl Hendrickson.

Answer.—When the sections are full the bees must then wait until the honey is ripened before sealing it. If you did not give them more super room this would explain why the bees quit work and began to cluster on the outside of the hive. To wait for the bees to seal the honey before giving another super would sometimes result in the loss of several supers of honey that might have been secured if more supers had been given at the proper time. Of course, it may be that the honey flow ceased at the time you noticed that the bees quit work, which would cause them to cluster on the outside of the hive. After the honey flow it is perfectly normal for the bees to cluster out in this manner.

Cause of Honey Souring.

Question.—What causes extracted honey to sour and how can it be sweetened again?

Illinois.

B. W. Green.

Answer.—Honey that is not well ripened before it is extracted is liable to ferment. Honey should be left on the hives until the combs are two-thirds or more sealed or longer in order that it may become well ripened before extracting. Honey that is slightly fermented can be improved by heating it to about 160 degrees.

Two or More Queens in One Hive.

Question.—Can I keep two or more queens in the same hive by separating them with perforated zinc?

John Sweep.

Maryland.

Answer.—You can keep more than one queen in a hive in this way during the honey flow and sometimes longer, but usually all but one of them will disappear after the honey flow.

Effect of Queen-excluder on Super Work.

Question.—Will the bees work better in extracting supers when no queen-excluder is used between the brood-chamber and the supers?

West Virginia.

D. M. Clingman.

Answer.—It is doubtful if you will be able to detect any difference in the amount of honey stored when queen-excluders are used between the brood-chamber and the supers, especially when the new 7-wire excluder is used.

JULY brings to the beginner several new problems in the management of his colonies, since in a large part of the country the main honey flow ceases some time this month, thus bringing enforced idleness to the thousands of workers of the hive.

Some seasons, the honey flow closes abruptly, with but little if any warning, especially if the weather becomes hot and dry; while other seasons it tapers off gradually toward the close, giving the beekeeper an opportunity to adjust affairs to the changed conditions.

In some localities, especially in the far north, the fall honey flow begins at about the time the early honey flow closes, thus giving a continuous honey flow through the summer; but, in most localities having a fall honey flow, there is an interval of several weeks between. In the greater part of the United States there is no dependable fall honey flow, the close of the early honey flow marking the end of the season so far as surplus honey is concerned. In a few localities such as the buckwheat region of New York and Pennsylvania, the main honey harvest does not begin until in August and September.

Wherever the honey flow may be expected to close this month, the beekeeper should keep close watch for indications of the close of the season in order to have the work in the supers finished to the best advantage.

How to Tell When Honey Flow is Closing.

One can tell something about the probable duration of the honey flow by noting the progress of the flowers that are furnishing the nectar. For example, in the clover region where most of the surplus honey is gathered from white clover and alsike clover, the honey flow may be expected to cease when most of the clover blossoms have matured. Sometimes, however, timely rains revive the white clover just as the season appears to be closing, thus prolonging the honey flow a week or two; but, if the weather is hot and dry the honey flow usually closes distressingly early, for then the blossoms mature quickly. Where sweet clover grows extensively, the honey flow is usually prolonged through July, but it tapers off toward the end of the month.

In the hive, one of the first indications of the closing of the season is the tendency of the bees to begin crowding more honey into the brood-chamber and putting less into the supers. The honey is crowded in at the upper portion of the brood area as the young bees emerge, thus limiting the queen to less space. The bees also build comb less lavishly toward the close of the season and

TALKS TO BEGINNERS

Geo. S. Demuth

they are inclined to discolor the newly built combs with propolis, giving them a yellow appearance. Another indication of the closing of the season is

the way the workers treat the drones. As the close of the honey flow approaches, the drone are often crowded down on the floor of the hive or out at the entrance, and occasionally a worker can be seen struggling with a drone some time before the general slaughter of the drones, which usually occurs after the honey flow has ceased. A very distressing indication that the season is closing is the tendency to rob, and an increasing tendency to sting. If the bees have been working so well that they paid no attention to honey exposed when opening the hives, but now suddenly begin to pounce upon exposed honey to carry it away, the honey flow is no doubt closing. As soon as the first indications of robbing are seen great caution is necessary in handling the bees. In fact, they should not be handled more than is absolutely necessary when they are cross or inclined to rob.

Beginners should be careful as the season advances, for, even before the close of the honey flow, the bees often become cross and ugly to handle. Some take great pride in handling bees without a veil and sometimes even without a smoker; but, while this can be done earlier in the season with reasonable safety with gentle bees, it would be folly for anyone but an expert to try it when the honey flow is closing. Bees that were gentle during the earlier part of the honey flow can not be depended upon to continue to be gentle this month. It is not a disgrace for a beekeeper to put on a good veil and be sure his smoker is going well before attempting any work with the bees.

Management of Supers as Close of Season Approaches.

During the latter part of the honey flow, additional supers should not be added so freely as earlier. It is better now to crowd the bees a little for super room than to give too much, but there should always be some room in the supers for new work until the honey flow has entirely ceased.

When producing extracted honey, the bees should have in the super at the close of the season at least two or three empty combs that were not needed, in order to be sure that they have had enough at all times. For comb honey, either in sections or in shallow extracting-frames (bulk comb honey), there should be some foundation for the bees to work on as long as they are willing to build comb.

For either extracted honey or comb honey the super work should be concentrated as

much as possible toward the close of the season to prevent too much unfinished work, but this is especially true for comb honey. The first step in concentrating the super work is to put the new super on top of the partly filled ones, when giving additional room. When this is done if more room is needed, the bees will use it; but, if not needed, they will neglect it, and the work in the other supers will not be retarded as would be the case if the empty super is placed below.

If extracted honey is being produced, a few combs of sealed honey from the middle of the super can be taken out and extracted, then put back to be refilled by the bees, instead of giving a whole super of empty combs or frames of foundation. This can also be done if there are no more supers at hand.

Comb-honey supers should be taken off promptly as soon as most of the sections are finished. It is not often advisable to leave a comb-honey super on the hive until every section has been sealed; for, before those in the corners are completed, those in the middle of the super may have their dainty white cappings discolored. It would be better, so far as the appearance of comb honey is concerned, if each section could be taken off the hive the day it is finished, but this is not practicable. There is usually not much trouble from discolored cappings during the midst of a rapid honey flow; but, toward its close or during a slow honey flow, the bees are inclined to varnish the cappings with propolis, thus spoiling their appearance.

Unfinished Sections Given Back to the Bees.

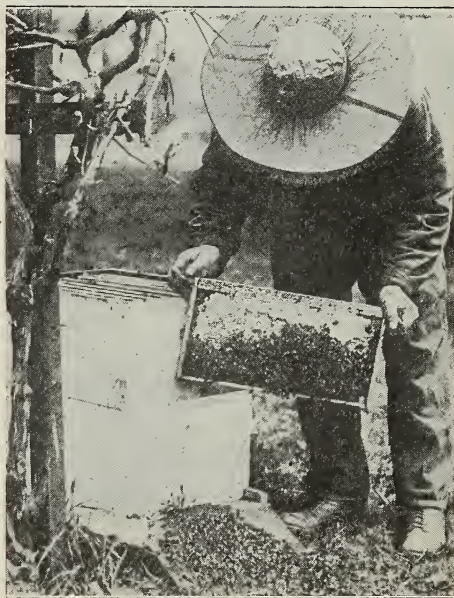
When the nearly finished supers of comb honey are taken off, the unfinished sections should be sorted out to give back to the bees to be finished. For instance, a colony may have three or four comb-honey supers well advanced and one in which work has been recently begun. There may be enough unfinished sections in the three or four advanced supers to fill one super, the rest of the honey being finished. In such cases the advanced supers should all be taken off, the honey sorted and the unfinished sections all assembled in one super. If the honey flow is now actually near its close, this super of nearly finished sections should be put back directly on top of the brood-chamber, and the other super in which work is just well started should be placed on top. This arrangement will cause the bees to finish the honey promptly. They may even remove some of the unsealed honey from the upper super and carry it down into the lower one. In this case it is not expected that the upper one will be finished. It is to be taken off and saved for next year.

Usually there will not be enough nearly finished sections on each hive to fill one super; but, if there are several colonies, the unfinished sections from all of them can be assembled and given back to the colony or

colonies doing the best work at finishing the honey. Those who have but one colony can assemble the sections which are nearest complete in the middle of a super, placing those in which less work has been done on the outside. In this case it is not necessary to have a second super on top, since there is room for the bees to carry on comb-building in these sections at the sides of the super.

It is not possible to secure the completion of all the sections on which work has been started; but, by concentrating the unfinished work in this manner, all those nearest complete can usually be completed.

As soon as the bees quit finishing the honey and if possible before they begin to discolor the cappings and the wood of the sections with propolis, all of the comb-honey supers should be taken off whether finished or not. Those sections that are still unfinished can be put away to feed the bees later, or some of them can be used at home. In the local market some of the heaviest of the unfinished sections can be sold as culls.



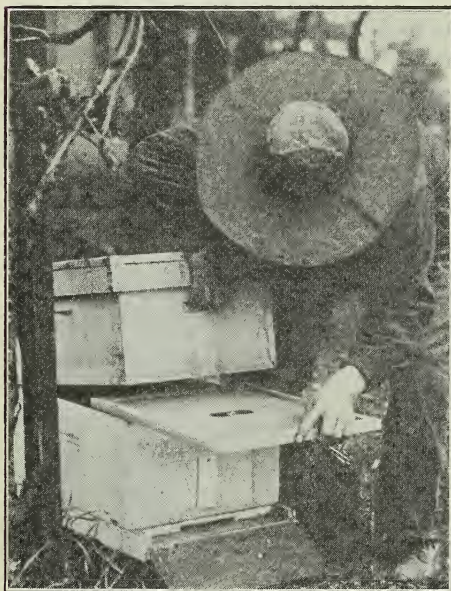
Shaking bees from a comb.

Comb-honey supers in which but little work has been done, if taken off promptly before the bees begin to gnaw down the foundation or stain the wood of the sections, will be of great value in starting work in the supers next year; but, if they are left on the hives a few days too long, they may be practically ruined so far as producing fancy honey in them later is concerned. It is better, therefore, to take off all comb-honey supers a little before the honey flow actually ceases than to leave them on too long.

How to Take Off the Honey.

While supers of honey can be removed from the hive without a bee-escape without much trouble during the honey flow, at the close of the honey flow the bee-escape is almost a necessity.

If the bee-escape is not used, the combs must be taken out of the extracting-supers one at a time and the bees brushed and shaken off. To do this, an empty super should be at hand in which to put the combs as they are taken from the bees. When the hive is first opened the bees should be started down out of the super with smoke and should not be permitted to return. As each comb is taken out it should be given a quick jerk to shake off most of the bees, then those remaining should be brushed off with a bee-brush or a large turkey-wing feather. The first two or three combs can



Putting in the bee-escape board.

be shaken in front of the entrance, but the remainder can be shaken back into the now vacant portion of the super on the hive. If robbers are troublesome, the honey should be kept well covered with a piece of canvas. In doing this kind of work, two can operate to better advantage than one.

In taking off comb-honey supers without a bee-escape, most of the bees should be smoked out of the super. As the cover is lifted, the bees should be started down at once with smoke and kept on the go until they are out of the super. If they are permitted to stop on the way they will fill themselves with honey, and, after they once get their heads into a cell, they pay but lit-

tle attention to smoke. When the cover is first lifted, the bees on top of the sections can be brushed off over the edge of the super, the operator brushing and smoking at the same time. While the bees are being driven down, the super should be pried loose but not lifted until most of the bees have gone below. Then one end of the super should be lifted and at the same time pulled slightly backward so one end will rest on the brood-chamber or the super below, while the super being removed is brought almost to a vertical position. This should be done so quickly that the bees on the bottom of the super do not have time to go back into the super before they can be brushed off. When this operation is complete most of the bees should be out of the super, and it is ready to be carried into the shop where the rest of the bees will soon leave it and fly to the windows when they can be permitted to escape by opening the window for a few seconds. Great care should be taken to keep the honey where the bees can not get at it; for, if they should be able to do so, they would rob it out and carry it back to the hives.

When the bee-escape is used in removing the honey, simply lift the super and insert the bee-escape board with the bee-escape in place below it, being sure that the flat side of the escape-board is down, and that the bee-escape is in position so that the bees can pass down through it. See that there are no cracks through which bees might gain access to this super, for when the bees desert it robbers would get in if they could find an opening anywhere large enough to squeeze through. Within 12 to 24 hours the bees should all, or nearly all, be out of the super when it can be taken away without disturbing the bees. This is by far the best way to take off honey, especially at the close of the season.

When taking away the honey, the bee-keeper must not forget that the bees must have enough honey left for their own use during the fall, winter and spring. Thousands and thousands of colonies are lost or rendered practically useless every year, because their owners fail to leave them enough to live on during the time but little or no nectar is to be had from the flowers. One of the best ways to provide for the bees is to have a second story for each hive. At the close of the honey flow this second story should be nearly two-thirds full of honey. This can easily be arranged when producing extracted honey; but, when comb honey is being produced, it is necessary to plan ahead to have this honey stored in the combs. It is a good plan to take off comb-honey supers a little before the honey flow closes, and give a second story so the bees will store some honey in it. After the two-story equipment is once supplied, this second story can usually be filled with honey during the early part of the honey flow to make sure that it will be on hand when needed.

TO help prevent swarming, keep open brood outside and hatching in center of brood-nest. Arrange the brood thus before putting on supers."—A. C. Gilbert, Livingston County, N. Y.

BEES, MEN AND THINGS

(You may find it here)

"The part of Queensland I am in is not a good part for bees as it is too dry and the rainfall very erratic. It is very dry here at the present time (May 8). It was only a few years ago that the first English (black) or Italian bees made their first appearance out this far. There are a good many of the small native bees; but these cannot be domesticated as they will not build their combs on frames the same as the other bees do, and a good nest out of a tree will have only about a quart in it and the bees have no stings."—F. L. Treweeke, Noondoo Siding, Queensland.

"Our state specialist in beekeeping, R. B. Wilson, has accepted a position in his home state, New York, and our director of extension says he is going to leave the Mississippi place vacant until he can get a real good man to fill it."—D. D. Stover, Lowndes County, Miss.

"Work in apiculture at Vocational School No. 1, U. S. Veterans' Bureau, Chillicothe, Ohio, is progressing rapidly. I have to date enrolled in this course 24 students, and each and every one of them is very much interested in the work."—H. L. Cress, Jr., Instructor in Apiculture, Chillicothe, Ohio.

"I suppose you know and practice this kind for the easy finding of queens without moving any frames. Uncover a strip across the frames on top of the hive, then send ten or twelve puffs of dense smoke under the frames. The bees will soon come boiling on top of the frames when it is an easy thing to catch the queen among them."—H. Dupret, Montreal, Canada.

"There has never been a season so favorable at this time of year as now for a bumper crop of honey. Bees wintered well and the spring has been unusually fine for brood-rearing, and the hives are running over with bees. Both white and sweet clover are about ten days or two weeks ahead of usual time."—W. H. Williams, Tazewell County, Ill., May 24.

"Bees ought to wear tags such as are affixed to dogs for the purpose of identification. This was well established yesterday by Attorney Atchison, attorney for W. W. Culver & Son, defendant in a damage suit brought by Hill Brothers, who alleged that Culver's bees attacked the horses when they attempted to plow their land in the

Paulin addition to the city. It was rumored that Attorney Atchison would demand identification of the bees that attacked the horses and he

did. On cross-examination he had witnesses describe the bees as small black ones, and then a number of other witnesses established that the Culver bees were large yellow ones. The Culver apiary is on the tract of land in question, and the Hill Brothers had 20 acres there which they claimed in their complaint they could not cultivate because of the Culver bees. Judge Markey decided in favor of the defendant on the grounds that the ownership and identity of the bees had not been established. The case was watched with great interest, and beemen from all over the valley were present to hear the evidence and note the outcome of the suit as it has bearing on their future activities in honey production."—Callexico (Calif.) Chronicle, Feb. 8.

"We have a very peculiar season just now as it is raining all the time and in the Red River Valley the bees are gathering a heavy surplus of good quality from honey locust, prickly ash and huckleberry. I have an apiary at Arthur City on the bank of the river that has a surplus of 50 pounds of good quality, and needing more room; but it is raining today and there are 12 miles of dirt road to travel over to get there, so you see the beekeeper has trouble too. We have had four weeks of continuous rain. The farmers have been unable to do any work, although the rains are moderate, but keeping the ground wet so nothing could be done on the farm. In many places there have been floods and storms. The bees in the black land are better than usual at this time of the season."—E. W. Cothran, Lamar County, Texas, May 15.

"On May 24 there was held at the Pettit Apiaries, Georgetown, Ontario, a field day of the Toronto Beekeepers' Association jointly with the Halton, Peel and Waterloo beekeepers' associations. There was an attendance of something like 200 beekeepers, some of them being among the largest producers in Ontario and in fact of the whole continent. Like most other field days in Ontario there was a large and enthusiastic gathering, especially at the picnic lunch. A great deal of credit is due to the secretary, Peter Temple, for the success of this meet. The speakers were Morley Pettit, Prof. F. Eric Millen, Prof. C. B. Gooderham, H. G. Sibbald and E. R. Root. A strong feeling of optimism prevailed among the members present, the honey crop of last season having all been sold and the prospects for the coming season exceedingly bright."—E. R. Root, Medina, Ohio.

YOU will notice—at least I hope you will—an advertisement in this issue headed, “Evolution at the Bar.” When Darwin’s work was first mentioned in print, I made haste to get it. I studied all of his works pretty thoroughly. At that time, something over fifty years ago, I was more in touch with the crowd of unbelievers than with Christian people, I am sorry to say. My attitude of mind, or perhaps I should say of heart, is explained in a little passage I quote from the book mentioned:

The warfare of philosophy against Christian faith is readily explained. Man is corrupt. He loves sin. He is conscious of his guilt and fears the penalty. Hence every avenue of escape is welcome if only he can persuade himself that there is no God, no judgment.

Now, please do not understand by this that I was transgressing the laws of our land. I had committed no crime; but I was well aware that I was trampling under foot at least one or more of God’s holy laws, and that was why I grasped so eagerly everything that Darwin, Huxley, Spencer, Tyndall, and I do not know but I could include Louis Agassiz also. When I found later, however, that Agassiz had exposed his ignorance by undertaking to teach us about the honeybee, I began to lose faith in some of the vaunted scientists of that time. Well, when the dear Lord lifted me from the “sinking sands” of unbelief a little later, I lost track to some extent of Darwin and evolution; but I managed to keep tab, at least fairly well, on the results of the teachings of evolution. “By their fruits ye shall know them.” At about the same time, and perhaps for the same reason, I made a pretty thorough investigation of spirit rappings and spiritualism, but soon decided that the exponents of neither one bore “good fruits.”

Now, there is one kind of evolution that is all right, and may God be praised for it. This book I have mentioned makes it very plain as to what is genuine evolution and what is false. Let me quote from page 73:

Evolution is the method of working which prevails everywhere, and always has, in human affairs; whereas outside of human affairs there is not a trace of it to be found in all the universe.

Under the manipulation and management of mankind or humanity, created in God’s own image, evolution is a blessing to the world. The author of this book sums it up as follows:



Lord, to whom shall we go? thou hast the words of eternal life.—John 6:68.

And God said, Let us make man in our image, after our likeness; and let him have dominion over the fish of the sea, and over the fowl of the air, and over the cattle, and over all the earth, and over every creeping thing that creepeth upon the earth.—Gen. 1:26.

God, be merciful to me a sinner.—Luke 18:13.

easy to trace, between the wheelbarrow and ox-cart of by-gone days, and the auto-car and flying-machine of the twentieth century, a connected line of evolutionary progress. And a similar line may be traced from the birch-bark canoe to the transoceanic liner and the submarine.

And now read another quotation, from page 75:

Wherever we look within the realm of human affairs the evidences of evolution stare us in the face; but in striking and significant contrast with this is the fact that, the moment we pass the boundaries of that realm, we strain our eyes in vain for a scrap of evidence to indicate that the process of evolution ever had a foothold. The birds construct their nests, the beavers their dams, the beehives and ant colonies carry on their complex operations precisely as they always have done. Moreover, each of those creatures does its work perfectly at the very first attempt, whereas man makes innumerable failures before he can do anything even passably well.

Please notice that last sentence, and then consider bees and bee culture, with which our readers are doubtless more or less familiar. Did the bee acquire its wonderful ability by slow degrees, or did it probably, like other insects, come into the world, even away back in the days of Adam, a skilled mechanic at the outset?

This book has only 80 pages. It will not take one long to read it. Some might consider it a rather high price for so small a volume; but when you consider the pains the author has taken to quote voluminously our best authorities of the present day, you will realize what an amount of labor he has bestowed to make this book clear up to the present time. In fact, I think it was first put out as late as April, 1922. As an illustration of the importance of such a work at the present time, and also as a reason why it should be read and considered by every parent and every teacher, I quote from page 71 as follows:

A parent, writing to a religious periodical, tells of a text-book brought home by his seven-year-old boy, the title of which was “Home Geography for Primary Grades.” The following quotation will serve to show what is now being taught to children of the most tender years. Discussing the subject of birds, this text-book for primary grades says: “Ever so long ago their grandfathers were not birds at all. Then they could not fly, for they had neither wings nor feathers. These grand-

A few centuries ago the crudest implements served the farmer for preparing the soil and gathering his crops. From those simple beginnings have evolved the tractors, harvesters and other modern wonders of farm equipment; and the advance has been by slight, progressive changes. Here is evolution sure enough, and precisely as described by Spencer and other materialists. So likewise in the department of locomotion and transportation, it is

fathers of our birds had four legs, a long tail, and jaws with teeth. After a time feathers grew on their bodies, and their front legs became changed for flying. These were strange-looking creatures. There are none of them living like them now." Such are the monstrous fictions now taught to little children as scientific truth.

While I was aware that we have teachers, and I am afraid *preachers*, who are giving such talk as the above, I confess that I was not aware that any such thing had gotten into the text-books of our schools—especially schools for the little ones. May God forbid; and I hope that this book, by calling attention to the matter, may be the means of having that "Home Geography" banished at once from the schools of our land. In his mention of the different books that have been written during the last fifty years in regard to evolution, I had to smile when I read the title of one of the books referred to in the following quotation:

Dr. E. Dennert's book, "*At the Death-bed of Darwinism*," gives the testimonies of leading scientists, showing that the title given to his book is fully justified.

I am well aware that Christian people are taking sides now on this matter of evolution as they have never done before; and I am afraid that there are quite a number of professing Christians, and perhaps some ministers of the gospel, who have gotten it into their heads that evolution conflicts with the Bible; but I think our ablest and most devoted followers of the Lord Jesus Christ decide there is no conflict worth wasting time on. Let us hold fast to the thought made so plain in the book, that evolution under the direction and management of humanity (the humanity *created in God's own image*) is a wonderful success, but that without this same God-given, human hand to direct, there is no progress nor advancement of any kind, out of the darkness of savagery and cannibalism into the glorious light of the present age, and especially of the glimpse that those who are living near to God and under the direction of his only Son, the Lord Jesus Christ, may have of what is coming in the future, and perhaps the very near future. While discussing this matter I remember a fragment of one of Watts' hymns:

Is this vile world a friend to grace
To lead me on to God?

Now permit me to paraphrase it just a little:

Is Darwin's Evolution a friend to grace
To lead me on to God?

A Professor in Overalls.

I have several times mentioned the fact that I feel greatly indebted to the many kind friends so ready and willing to lend a helping hand during this busy life of mine; and perhaps I had better mention again that, in order to have my undertakings come out successfully, I have found it absolutely necessary to be on hand to keep watch, and sometimes turn in and help

these mechanics or men of science who are trying to work out my ideas. I have already mentioned at different times during the past three or four years my good friend, L. C. Kaiser, who has charge of the Bradentown electric lighting plant. Well, after our windmills were installed I discovered that my electric radiator gave out very much more heat in the garage near the windmill than it would in the house, say 150 feet away. When I appealed to friend Kaiser he explained that the copper wire from the windmill to the house was too small for a 32-volt current—that a heavier wire would have to be put in; and he volunteered to put in a heavier wire for me. Now, I had already been told that the insurance companies insist on professional wiring before

they will insure property; and as I followed friend Kaiser in his work I said to him something as follows:

"My good friend, are you sure the way you are doing this is in accordance with the inspector's rules?"

"No, I am not quite sure, but I think it will answer."

"By the way, did you ever wire up a house before?"

"No, I never did; but I



My long-time friend and expert helper, especially in electricity, Mr. L. C. Kaiser.

guess this will pass muster."

I dropped the subject, but still felt a little uneasy about it as I followed along with him. After a little spell he said, with one of his comic smiles:

"Why, Mr. Root, maybe you will feel a little easier if I explain to you that I happen to be the electric inspector for Manatee County."

A College Professor in Overalls.

When I found out that I needed another windmill to run my automobile, light the house, heat the radiator, etc., the question was, "Who will put up the tower and install the machinery?" To my great surprise, Prof. C. D. Clippell of Wyndmere, N. D., superintendent of the Wyndmere Electric Windmill Co., said he would come down and put up my tower and install the machinery free of charge if I would pay his traveling expenses to Bradentown. As

he and his wife were intending to spend their winter in Florida they would pay their own expenses back home, of course. When the professor arrived I had the timber for the tower all on the ground—8 pieces 6 inches square and 24 feet long, in order to put up a 48-foot tower. Our first tower was put together while it was lying on the ground, and pulled up by a lot of men and a capstan. My good friend Clippell had never put up a tower with sticks that long. The blue-print called for 12 pieces 16 feet long instead of 8 (as I had it), 24 feet long. But he said he thought he could do it all right. I had the anchor irons all ready, set in cement sometime before, which was now hard enough to stand the strain.

Perhaps I might explain right here that I made a short cut for these corner supports. I procured four good-sized barrels, took out the heads, and then removed the hoops from each barrel half way up, leaving the staves on the lower half so they could be wedged or spread out tunnel-shaped at the bottom. I wedged in cross-pieces so as to hold the staves spread out. Then I dug a hole where each corner was to be, large enough to let the barrel in, with the top, where the hoops remained, 6 or 8 inches above the level of the ground. The anchor irons were then cemented in the center of each of these barrels. They were simply pieces of old iron, say 1 by 3 inches, with a one-inch hole near the upper end. These irons were set in the barrel just where the corner posts were to be located. In the hole in the top was put a one-inch bolt long enough to go thru the bottom of each 6-inch

timber. It was not a very difficult matter to set up the four lower timbers and nail on the proper braces to make the bottom half of the tower. Now when you come to think of setting four more 6-inch timbers 24 feet long on top of the first four it looked to me almost like an impossibility. I asked the professor if he did not want one or more expert



A college professor, and at the same time an expert mechanic in his working rig, Prof. C. D. Clippell.

carpenters. He said he did not want any carpenters at all, but a good stout colored boy to do as he told him, and one who

was not afraid to climb would be all right. Our neighbor Rood let us have such a boy who had some knowledge of carpenter work, and with his help we thought we could do the work all right; but the boy got it into his head that he was not getting pay enough for *such* an undertaking, and so we let him go. Friend Kaiser got a short leave of absence to turn in and help. Maybe you would like to know just how these two men set four sticks of timber, each 24 feet long, on top of four similar timbers already up. They did it this way:

A stout rope was attached to the middle of one of the 24-foot pieces. Then with rope and tackle they hauled it up to the top of the first four. When swung around vertically it reached 12 feet above the first four. I think they managed to haul it up a little more than 12 feet, and then braced and chained it securely in place. With the aid of this first one they pulled up a second one and got it in place and bolted it to the splice already made in the two sticks so it could be straightened up and stayed 48 feet high. With this one in place, of course it was an easy matter to set the other three. Then Mr. Clippell finished the tower with the help of Wesley, who stood on the ground and pulled a rope to lift up the stuff. Wesley was a little afraid to climb so high up in the air.

Before I go any further let me explain that, during all my life, I have regarded a college professor as all right before his class of pupils; but with a hoe or a set of carpenter tools I did not suppose that, as a rule, he would be "anywhere." I found Mr. Clippell was an expert carpenter, and could do almost anything in the way of woodwork or ironwork if he had the proper tools. Of course we had blueprints of the whole edifice, and several times I began to worry because the professor did not pay much attention to the blueprints. Finally one day when I was feeling troubled about some of the short cuts, he gave me one of my happy surprises, by saying:

"Why, Mr. Root, if it will make you feel any better about it I might mention that I made all the blueprints that you have myself."

"You made them?" said I.

"Certainly. I made all the blueprints that were ever sent out by the Wyndmere Electric Windmill Co."

And then I had my second vision of a professor in overalls—you might at this time say a *college* professor in overalls. I might add that my good friend, after he had finished the tower and set up the windmill, did a lot of things for me for about half the regular wages, or for nothing at all. So far as I can learn he has now left college work and mechanical work, and is growing great big red apples away up in Minnesota.

After submitting the above to my friend Clippell, he adds to it as below;

BUILDING A WINDMILL TOWER, RATHER THAN RAISING IT.

In this description of the above operation I wish to make it plain that this tower was built in place, rather than put together lying on the ground and raised into place, as is usually done.

In the first place, the entire tower was cut or sawed out, according to plan as shown by the blue-print. Each piece, or rather group of pieces, such as the cross and girder braces, were carefully laid in separate piles so that they could be easily found when the actual building of the tower was begun. The four corner posts, made up of two 6x6x24-foot timbers each, were cut to length and the splice at the center carefully fitted and bolted together. These were then unbolted and taken apart and marked in such way that no difficulty would be experienced in getting them together again as they originally were when erecting them.

The process of erection was then undertaken as follows:

Two of the lower halves of corner posts were bolted to two of the anchor irons, the posts lying on the ground in such a manner that the cross and girder braces for one side of the tower could be nailed to them. Only one bolt was used in each post so that, after the braces had been nailed on, these two posts could be raised into their approximate position, using the bolts thru the anchor irons as hinges upon which to swing them. Having raised these two posts into position, the other two bolts thru the anchor irons were put in, and the frame thus formed was securely braced in position as a matter of safety.

In a similar manner, the other two lower halves of the corner posts were bolted to their anchors, their braces nailed on and the whole swung up into position and temporarily braced. It required the help of four or five extra men, recruited for the purpose for the few minutes that it took to raise these two frames, and this was really the only part of the whole job that required anything more than two men. It was a simple matter to nail on the remaining braces on the other two sides of these two frames and thus complete the entire lower half of the tower.

The raising of the upper half was accomplished with the aid of a good block and tackle as follows:

One of the upper half corner posts was passed up thru the center of the tower and made fast in its position by using the longer of the cross braces not yet put on as cross-pieces to reach across the center of the tower, thus forming a support for the bottom of this center post and also a secure fastening further up to hold it in its vertical position. This central post was placed so that it extended about 15 feet above the top of the lower half of the tower and was used as a jim-pole with which to raise the other three top corner posts. By means of the block and tackle fastened to the top of this jim-pole, the other three top halves of the corner posts were swung into place and securely bolted at the splices. The side braces for two sides of the tower could then be nailed in place on the upper half. With these braces in place the upper half of the tower became reasonably rigid, and it was then possible to take down the post in the center and, with the block and tackle fastened at the top of one of the three posts already in place, swing it up into its position. This last post was then bolted at the splice and the remaining side braces nailed on.

It remained then only to make the ladder, nail it in place, and, using it to ascend and descend the tower, complete the entire structure with the aid of a hand line and Wesley at the lower end of it.

It should be evident that, with this method of erection, there is no need for any scaffolding or extra bracing material whatever. The unused cross-braces furnish all that is needed of this material and may be used for what little of such braces as are needed. It will be found that, as the work progresses, such as may have been used of these braces for such purposes will be released in plenty of time so that they can be put in their permanent places as needed.

Mr. Rood's colored boy remained with me until the tower was entirely completed. It was when we wanted him to help put the windmill itself in place that he "resigned." Then Mr. Kaiser helped us out by coming out a few mornings when he was off duty, until we had the wheel in place.

I might add that I am not raising apples here in Minnesota as you seem to think. The only red things we raise are Rhode Island Red chickens and Red Jersey Duroc hogs. In other words, we are doing a general farming business in hogs, cattle, and sheep, and the full line of diversified crops. The apples you have in mind are raised on my brother-in-law's ranch at Hood River, Oregon.

Late.—I have just now by accident learned that my expert friend Clippell was for ten years instructor in the State School of Science of North Dakota, and also a graduate engineer from the University of Minnesota.

Blueberries in New Jersey and Blueberries in Florida.

Last August I wrote up my visit to Jersey to see the improved blueberries, or "huckleberries," as they are often called; and I told you I received two plants that cost me \$5.00 each, as the result of many years' selection and cross-fertilization. Well, today, June 12, each plant has many clusters of great beautiful berries; but, of course, they are not yet ripe. But they bid fair to be fully equal to the large beautiful delicious berries I found at Whitesboro, N. J. Now for the Florida blueberries:

Two different concerns at Tampa, Fla., or near there, are sending out catalogs describing half a dozen or more blueberries; but they want a dollar or more each for their plants; and I took it from their advertisement that these were nursery-grown plants. Sometime in March I saw the following advertisement:

BLUEBERRY TREES prepaid 30 cts. each in small lots. 100 \$15 f. o. b. W. C. Carver, Route 1, Crestview, Fla.

I at once inclosed a dollar for a sample, stipulating that I wanted transplanted nursery plants, and that if they were just plants taken from the forest they were to return the money. Imagine my surprise at receiving the following:

Your order received. I am very sorry to say my trees are all forest-grown, but they are the same kind as those that are being cultivated in the South. There is no "improved kind" in the South. The cultivation makes the berries larger and some advertisers misrepresent these bushes or trees. Every tree that is sold in south Florida comes from here, and 95 per cent are forest-grown stuff. There are over 200 acres in berry trees in this county, and all come from the forest. There are trees here that bear as high as 40 quarts of berries in one season. We call these berries the "Rabbitseye." They are about the size of a rabbit's eye, so you can judge for yourself about whether they are like your kind or not. I want to be honest about this. Enclosed you will find your money. I am sending a sample of trees by parcel post.

Yours truly,

W. C. Carver.

Rt. 1, Crestview, Fla., Mar. 2, 1922.

Now, I was considerably surprised to have Mr. Carver tell me that Mr. Sapp has found by years of experiment that plants or trees taken directly from the forest give even better results than transplanted nursery plants. See August Gleanings for a continuation of this matter.

Classified Advertisements

Notices will be inserted in these classified columns for 50c per line. Advertisements intended for this department cannot be less than two lines, and you must say you want your advertisement in the classified column, or we will not be responsible for errors. For special conditions on bee and queen advertising, please write us. Copy should be received by 15th of preceding month to insure insertion.

REGULAR ADVERTISERS DISCONTINUED IN GOOD STANDING.

(Temporary advertisers and advertisers of small lots, when discontinued, are not here listed. It is only regular advertisers of regular lines who are here listed when their advertisements are discontinued when they are in good standing.)

M. C. Berry, E. S. Robinson, Sioux Honey Association, Brookside Apiaries, Sarasota Bee Co., Wells D. Rose, M. F. Perry, B. F. Averill, Rose-dale Apiaries, H. S. Ostrander, H. E. Graham, C. A. Mayeux, Oscar Mayeux, Spahn Bros., Western Bee Farms Corps., Michigan Honey Producers' Exchange, The Orange Apiaries, Mead Cycle Co., Boyd Import & Mfg. Co., Hardin S. Foster, King's Apiaries, A. J. Lemoine, Tropical Apiaries, Henry Field Seed Co., Kitselman Bros., Hayneville Apiary Co.

HONEY AND WAX FOR SALE.

FOR SALE—Clover, amber and buckwheat honey. 60-lb. cans and 5 and 10 lb. pails. C. J. Baldridge, Kendaia, N. Y.

FOR SALE—Choice saw palmetto honey, 390-lb. barrels, \$35.00; 10-lb. cans, \$1.25 f. o. b. Ward Lamkin, Arcadia, Fla.

FOR SALE—25 tons fine extracted white clover honey at 12c. Comb honey prices on request. Dr. E. Kohn & Son, Grover Hill, Ohio.

FOR SALE—12,000 lbs. of choice white clover honey, well ripened, put up in new 5 and 10 lb. pails. Sample 25c. W. B. Wallin, Brooksville, Ky.

FOR SALE—White honey in 60-lb. cans, also West Indian in 50-gal. barrels. Samples and price on request. A. I. Root Co., 23 Leonard St., New York City.

HONEY FOR SALE—In 60-lb. tins, water-white orange, 15c; white sage, 14c; extra L. A. sage, 12c; buckwheat, 10c, etc. Hoffman & Hauck, Woodhaven, N. Y.

FOR SALE—Several tons of dark and amber extracted honey for baking, etc., in barrels and 60-lb. cans; comb honey in season. H. G. Quirin, Bellevue, Ohio.

FOR SALE—Very best white sweet clover honey in 60-lb. cans. Can't be beat. Sample, 10c, and the price will interest you; f. o. b. Joe C. Weaver, Cochrane, Ala.

RASPBERRY HONEY—In 60-lb. cans, 2 in a case for \$14.40; one in a case, \$7.50. Sample by mail, 20c, which may be applied on order for honey. Elmer Hutchinson & Son, Lake City, Mich.

NOTICE TO OUR CUSTOMERS—Our 1922 crop of white clover extracted honey will be ready for the market the last of the month, July. Say how much you can use and when delivery is to be made and we will quote you a price. Forty-six years in the production of extracted honey. None better. E. D. Townsend & Sons, Northstar, Mich.

FOR SALE—We can supply honey to beekeepers or other roadside sellers who may need to buy beyond their own supply, packed as follows: 2½-lb. friction top tin cans, 2 doz in case; 5-lb.

friction top tin cans, 1 doz. in case; 10-lb. friction top tin cans, ½ doz. in case; 60-lb. square cans, 1 to case; 60-lb. square cans, 2 to case. We have the following kinds of honey: Standard white, alfalfa, sweet clover, California sage, California orange, light amber, amber. Write for prices. The A. I. Root Co., Medina, Ohio.

HONEY AND WAX WANTED.

WANTED—Honey, section, bulk comb and extracted. Elton Warner, Asheville, N. C.

BEESWAX WANTED—For manufacture into SUPERIOR FOUNDATION. (Weed Process.) Superior Honey Co., Ogden, Utah.

WANTED—Bulk comb and section honey. Correspondence solicited. J. E. Harris, Morristown, Tenn.

WANTED—Honey in ton lots, comb and extracted, of all kinds. Joe Mlinarits, 8927 Keller St., Detroit, Mich.

WANTED—Shipments of old combs and cappings for rendering. We pay the highest cash and trade prices, charging but 5c a pound for wax rendered. The Fred W. Muth Co., Pearl and Walnut Sts., Cincinnati, Ohio.

WANTED—Beeswax. We are paying 1c and 2c extra for choice yellow beeswax and in exchange for supplies we can offer a still better price. Be sure your shipment bears your name and address so we can identify it immediately upon arrival, and make prompt remittance. The A. I. Root Co., Medina, Ohio.

FOR SALE.

HONEY LABELS—New design. Catalog free. Eastern Label Co., Clintonville, Conn.

FOR SALE—10-inch Root foundation mill, A-1 condition, \$40 00. Holloway Bros., Marietta, Okla.

FOR SALE—Used honey cans in cases, good condition. S. T. Fish & Co., 163 W. S. Water St., Chicago, Ill.

HONEY cans and pails; new sixties, 50 cases at 91c per case two cans. The Stover Apiaries, Mayhew, Miss.

FOR SALE—150 beehives, mostly double-walled; price, \$2.00 each for the lot. L. F. Howden, Fillmore, N. Y.

FOR SALE—"SUPERIOR" FOUNDATION, "quality unexcelled." Let us prove it. Order now. Superior Honey Co., Ogden, Utah.

PORTER BEE-ESCAPES save honey, time and money. For sale by all dealers in bee supplies. R. & E. C. Porter, Lewiston, Ill.

FOR SALE—Good second-hand 60-lb. cans, two cans to case, boxed, at 60c per case, f. o. b. Cincinnati. Terms cash. C. H. W. Weber & Co., Cincinnati, Ohio.

SEND for our bargain list of new bee supplies, hives, frames, bottoms, covers, sections, shipping cases, almost everything you want. Some at 50% discount. The Stover Apiaries, Mayhew, Miss.

FOR SALE—80 cases, 60-lb. cans, two in a case, 60c per case. Honey was liquefied with dry heat, leaving the cans in extra fine condition. John C. Bull, 1013 Calumet Ave., Valparaiso, Ind.

FOR SALE—Reversible two-frame Cowan extractor and 20 colonies of bees in standard 10-frame hives and equipment. Harry P. Itnyre, 511 West 10th St., Sterling, Ill.

BEAUTIFULLY located apiary in New Jersey, 25 miles from New York City. New stucco house with all city improvements, fine locality for bees and poultry. Cash, \$2000; balance, \$6000. Mortgage or will take partnership with reliable party. Inquire 556 Park Ave., West New York, N. J.

WANTS AND EXCHANGE.

ROYAL typewriter, \$65.00. Will trade for honey, queens or offer. E. A. Harris, Albany, Ala.

WANTED—A two-frame extractor. L. & L. B. Fasick, R. R. C. Box No. 65, Richmond, Ind.

WANTED—Old combs and cappings for rendering on shares. Our steam equipment secures all the wax. Superior Honey Co., Ogden, Utah.

BEESEX wanted. Old combs (dry) and cappings for rendering. Also wax accepted in trade. Top market prices offered. A. I. Root Co. of Iowa, Council Bluffs, Iowa.

MOVING PICTURE OUTFIT—New, cost \$250. Sell at \$150 or exchange for bees, supplies, two-frame extractor or typewriter. Send offer. Quincy Hart, Gentryville, Ind.

OLD COMBS, cappings or slumgum wanted for rendering by steam press process. We pay cash for wax rendered; trade for supplies, or work it into foundation. W. T. Falconer Mfg. Co., Falconer, N. Y.

OLD COMBS WANTED—Our steam wax-presses will get every ounce of beeswax out of old combs, cappings or slumgum. Send for our terms and our 1922 catalog. We will buy your share of the wax for cash or will work it into foundation for you. Dadant & Son, Hamilton, Ill.

PARTNER WANTED.—Having more bees than I can personally attend to, I want a first-class, all-around apiarist who has had experience in queen-rearing. Prefer man with capital, but would entertain any reasonable offer. Good character, experience, health, good eyesight required, and good queen-rearer preferred. Write fully in first letter, stating qualifications, age, whether married and whether strong and healthy. References exchanged. Either working interest or partnership. First-class outfit with thoroughbred Italian stock, leather-colored, three-banded. Splendid opportunity for queen-rearer. Business well established. C. M. Elfer, St. Rose, La.

BEEES AND QUEENS.

NO more package bees this season. J. J. Scott, Crowville, La.

SEE Thagard's ad elsewhere back to pre-war day prices.

HARDY Italian queens, \$1.00 each. W. G. Lauver, Middleton, Pa.

FOR SALE—Colonies Italian bees and equipment. Alvin Buff, Frost, Ohio.

WHEN it's GOLDEN, it's PHELPS. C. W. Phelps & Son, Binghamton, N. Y.

FOR SALE—Italian queens, nuclei and packages. B. F. Kindig, E. Lansing, Mich.

FOR SALE—40 colonies of bees. No disease. J. R. Coulson, Portland, R. D. No. 12, Ind.

REQUEEN with SIMMONS' QUEENS. Prices reduced. Fairmount Apiary, Livingston, N. Y.

\$200 for one queen. See larger ad elsewhere. J. M. Cutts & Son, R. D. No. 1, Montgomery, Ala.

WHEN it's quality, service and satisfaction you want to try Pinard. A. J. Pinard, 440 N. 6th St., San Jose, Calif.

FOR SALE—Three-banded Italian queens. Tested, after June 15, \$2.00 each. J. D. Kroha, 87 North St., Danbury, Conn.

PHELPS GOLDEN QUEENS will please you. Mated, \$2.00; 6, \$10.00; or \$18.00 a doz. C. W. Phelps & Son, Binghamton, N. Y.

TWO-POUND package bees with untested Italian queen, \$5.00; 3 lbs., \$7.00. Safe delivery guaranteed. C. H. Cobb, Belleville, Ark.

PRITCHARD QUEENS are the result of years of careful breeding and selection. See ad page 481. Arlie Pritchard, Medina, Ohio.

FOR SALE—Bright Italian queens, 1, \$1.00; 12, \$10.00; 100, \$75.00. Safe arrival guaranteed. T. J. Talley, Greenville, R. D. No. 3, Ala.

HIGH-GRADE Italian queens. Laying, \$1.50; tested, \$2.50; day-old, 50c. Introduction guaranteed, 75c. James McKee, Riverside, Calif.

FOR quick sale BARGAIN on 150 colonies with 20 acres fertile, well-located land in Florida. Good reason for selling. W. I. Keiter, Cherrydale, Va.

FOR SALE—Golden Italian queens, 1 untested, \$1.00; 6 for \$5.00; tested, \$2.00; hybrids, 3 for \$1.00. J. F. Michael, Winchester, R. D. No. 1, Ind.

"SHE-SUITS-ME" queens, line-bred Italians. \$1.50 each; 10 to 24, \$1.30 each. See back cover of January number. Allen Latham, Norwichtown, Conn.

TRY our northern-bred leather-colored Italian queens for European foul brood at \$1.25 each; 6, \$7.00; 12, \$13.50. Charles Stewart, Johnstown, N. Y.

FOR SALE—Early package bees, nuclei and queens. We handle 1800 colonies. Shipping season March 1 to June 1. Lovett Honey Co., Phoenix, Ariz.

FOR SALE—July 1, Buck Goldens, 1 queen, \$1.00; 6 queens, \$5.00; 12 queens, \$10.00; virgins, 40c. W. W. Talley, R. D. No. 4, Greenville, Ala.

QUEENS—For summer and fall. Write for prices and guarantee, state quantity desired and when shipment wanted. I can fill your orders. J. L. St. Romain, Hamburg, La.

WE ARE booking orders now for spring delivery for the famous "Colorado Queens." Send your order early so as to be sure to get your queens. C. I. Goodrich, Wheatridge, Colo.

ELTON WARNER'S QUALITY QUEENS—Progeny of his famous Porto Rican breeding stock. Write for price list. 20% off after June 30. Elton Warner Apiaries, Asheville, N. C.

FOR SALE—Three-band Italian queens, select untested, \$1.00 each; \$9.00 per doz. 2-lb. package with queen, \$5.00. Satisfaction guaranteed. W. T. Perdue & Sons, Fort Deposit, Ala.

BEEES BY THE POUND — Also QUEENS. Booking orders now. FREE circulars, giving details. See larger ad elsewhere. Nueces County Apiaries, Calallen, Texas. E. B. Ault, Prop.

QUEENS AND NUCLEI FOR SALE.—Three-banded Italians, one queen, \$1.10; per dozen, \$10.00; 2-frame nucleus with queen, \$4.50; 3-frame nucleus and queen, \$6.00. Will book orders for two months for August and September delivery if wanted at a cut price of 50c on nucleus and 10c on queens. No disease. Orders filled at once. 50 swarms for sale delivered in September and October, at \$10.00 each. Thanks in advance. Hickory Shade Apiary, Otterville, Mo.

TRY ACHORD'S BEES AND QUEENS. Price list by return mail. W. D. Achord, Fitzpatrick, Ala.

SPECIAL prices on queens and bees. See my ad page 488. Frank Bornhoffer, Mt. Washington, Ohio.

FOR SALE—Three-banded Italian queens, untested, \$1.50 each; 6, \$8.00. Ready now. Satisfaction guaranteed. Chas. W. Zweily, Willow Springs, Ill.

TRY MY CAUCASIAN OR ITALIAN three-frame nuclei at \$5.00 each, with untested queen. Tested, \$1.50; untested, \$1.00, of either kind. No disease. Peter Schaffhauser, Havelock, N. Car.

FOR SALE—Golden Italian queens, untested, \$1.00; 6 for \$5.40; 12 or more, 80c each; tested, \$1.50 each; select tested, \$2.50 each. Safe arrival guaranteed. Sam Hinshaw, Randleman, N. C.

GOLDEN QUEENS that produce large beautiful bees, solid yellow to tip, very gentle and prolific. Untested, \$1.25 each; select tested, \$3.00 each; breeders, tested, \$5.00. Dr. White Bee Co., Sandia, Texas.

FOR SALE—Leather-colored Italian queens, tested, until June 1, \$2.50, after \$2.00. Untested, \$1.25; 12, \$13.00. ROOT'S GOODS, ROOT'S PRICES. A. W. Yates, 15 Chapman St., Hartford, Conn.

FOR SALE—Three-banded Italian queens, 1, \$1.00; 6, \$5.00; 12, \$9.00; 100, \$70.00, after May 20. We ship only the best. Safe arrival and satisfaction guaranteed. W. C. Smith & Co., Calhoun, Ala.

FOR SALE—My 1922 golden queens, the big yellow kind, none better. Satisfaction guaranteed. Price \$1.00 each, or \$10.00 per doz. After June 15, 90c each, or \$9.00 per doz. E. F. Day, Honorville, Ala.

FOR SALE—350 colonies of bees with complete extracting equipment, including power extractor, steam boiler, and auto truck, with or without 1922 crop. Scott McClanahan, Parma, R. D. No. 1, Idaho.

IF GOOD bright Italian queens are wanted by return mail, send your order to M. Bates, Greenville, Ala. Price, \$1.00 each; \$10.00 per dozen; \$75 per 100. Pure mating, safe arrival and satisfaction guaranteed.

FOR SALE—Pinard's quality of Root's strain of bees and queens. Virgins, 50c. Untested queens, \$1.25 each. Larger lots write. Circular free. After July 1, 10% discount. A. J. Pinard, 440 N. 6th St., San Jose, Calif.

FOR SALE—Pure three-banded Italian queens, reared by the Doolittle method from the best honey-producing mothers. \$1.00 each; tested, \$2.00. I guarantee pure mating and safe arrival. H. N. Boley, Hillsboro, Iowa.

FOR SALE—Golden Italian queens, untested, \$1.00; 6 for \$5.40; 12 or more, 80c each; tested, \$1.40 each. Good honey-gatherers, hardy and gentle. No disease. Safe arrival. Hazel V. Bonkemeyer, Randleman, R. D. No. 2, N. C.

FOR SALE—Unsurpassed Italian queens, ready June 1. Untested, 1, \$1.25; 6, \$7.00; 12, \$12.50; 50, \$50.00; 100, \$95.00. Tested, 1, \$2.00; 6, \$11.00. My queens are actually laying before they are sent out. J. D. Harrah, Freewater, Oregon.

BRIGHT ITALIAN QUEENS, \$1.00 each, 10% less in dozen lots. Pure mating, safe arrival and reasonable satisfaction guaranteed in U. S. and Canada. Write us for prices on package bees. We have them in season. Graydon Bros., Rt. 4, Greenville, Ala.

HEAD your colonies with Williams' Italian queens of quality and get more pleasure and profit from your bees. They produce bees that are gentle, hardy and hustling. Descriptive circular free. Select untested, 75c each. P. M. Williams, Ft. Deposit, Ala.

ORDERS booked now for spring delivery, 3-frame nucleus and queen, \$6.50; select tested, \$7.50; Dr. Miller's strain. No pound packages. Low express rates and quick transit north. 10% with order. S. G. Crocker, Jr., Roland Park, Baltimore, Md.

SPICER'S three-band Italian queens by return mail. If you are interested in improving your stock and getting larger returns from your bees, head your colonies with these queens. Untested, \$1.00; 6, \$5.50; 12, \$10.00; tested, \$2.00 each. Robt. B. Spicer, Wharton, N. J.

FOR SALE—Italian queen untested, \$1.25 each; 6 for \$7.00; 12 for \$13.50; tested, \$2.00 each. Bees by the pound shipped by express, one-pound package with queen, \$3.75; two-pound package with queen, \$5.75; three-pound package with queen, \$7.50. Safe delivery and satisfaction guaranteed. R. B. Grout, Jamaica, Vt.

FOR SALE—DEPENDABLE GOLDEN ITALIAN QUEENS add beauty to your bee quality. Virgins, 60c; 5 for \$2.50; untested, \$1.00; 6 for \$5.00; select untested, \$1.50; 6 for \$6.50; tested, \$2.50; 5 for \$10.00; selected, \$3.00; breeders, \$5.00. Safe arrival and quality guaranteed. S. H. Hailey, Pinson, Tenn.

THE ITALIAN QUEENS OF WINDMERE are superior three-banded stock. Our aim is not quantity but quality. Our first consideration is to give perfect satisfaction. Untested, \$1.50 each; 6 for \$8.00; tested, \$2.00 each; select tested, \$3.00 each. Prof. W. A. Matheny, Ohio University, Athens, Ohio.

BALANCE of season we will furnish a 2-lb. package of our three-banded hustlers with a select untested queen for \$4.75; 25 or more, \$4.50 each. Select untested queens from our best breeders. \$1.00 each; \$10.00 per doz. Tested, \$1.50 each; \$15.00 per doz. Caney Valley Apiaries, J. D. Yancey, Mgr., Bay City, Texas.

FOR SALE—Golden Italian queens and bees, untested, 1 queen, \$1.00; 1 dozen, \$10.00; 100, \$75.00. 2-lb. package with queen, \$5.00; 1-lb. package with queen, \$3.00; 12 or more, 5% off. 2-frame nucleus with queen, \$5.00; 15 or more, 5% off. Safe arrival and satisfaction guaranteed. J. F. Rogers, Greenville, R. D. No. 3, Ala.

CONNECTICUT QUEENS, highest grade three-banded Italians. Untested, \$1.00 each; 6, \$5.50; 12, \$10; 50, \$40; 100, \$75. Two lbs. of bees with queens, \$4.00; 3 lbs. with queen, \$6.00. Day-old virgin queens, 40c each; 3 for \$1.00. First-class stock and satisfaction guaranteed. No disease here. Conn Valley Apiaries, A. E. Crandall, Berlin, Conn.

FOR SALE—Golden Italian queens—good queens at low price. Untested, \$1.00; 6 for \$5.40; 12 or more, 80c each; tested, \$1.50 each; select tested, \$2.50 each. No disease of any kind. Bees very gentle and good honey-gatherers, not apt to swarm unless crowded for room. 13 years a queen-breeder. D. T. Gaster, Randleman, R. D. No. 2, N. C.

LARGE, HARDY, PROLIFIC QUEENS—Three-band Italians and Goldens. Pure mating and safe arrival guaranteed. We ship only queens that are top notchers in size, prolificness and color. After June 1 prices as follows: Untested, \$1.25 each; 6 for \$7.00; select untested, \$1.50 each; 6 for \$8.50; select tested, \$3.00 each. Special prices on larger quantities. Queens clipped free on request. Health certificate with each shipment. Buckeye Queens, Zoarville, Ohio.

PACKAGE BEES—\$1.50 per pound. Untested Italian or Carniolan queens, \$1.25 each. Circular free. J. E. Wing, 155 Schiele Ave., San Jose, Calif.

DEPENDABLE QUEENS—Golden or three-banded, after June 1: 1, \$1.50; 6, \$8.00; 12, \$15. Safe arrival and satisfaction guaranteed. Send for circular. Ross B. Scott, La Grange, Ind.

COLORADO HEADQUARTERS for QUEENS—Northern-bred leather-colored three-band Italians. Safe arrival guaranteed. Booking orders now for June 1st delivery. Send for circular and price list. Loveland Honey & Mercantile Co., Loveland, Colo.

THREE pounds of bees, shipped on a Hoffman frame of brood and honey, with an untested Italian queen for \$6.00. No disease, satisfaction and safe arrival guaranteed. 25% books your order for April and May shipments. E. J. Beridon, Jr., Mansura, La.

SPECIAL FOR JULY ONLY—One select untested three-banded queen, 50c, one only to each customer. Three-frame nuclei with select untested queen, \$5.00; select untested three-banded queens, six or more, 75c each. Tupelo Honey Co., Columbia Ala.

TESTED QUEENS—One-year-old tested three-banded Italian queens, descended from the famous Moore strain. Were reared in full colonies and are very fine queens. Price, \$1.50 each; 6 for \$8.50; 12 for \$16.00. Safe arrival and satisfaction guaranteed. Elmer Hutchinson & Son, Lake City, Mich.

GOLDEN ITALIAN QUEENS—Bred from finest strain in U. S. Mated to select drones. **THEY POSSESS THE QUALITIES WHICH MAKE BEEKEEPING PROFITABLE.** Untested, 75c; dozen, \$7.50; virgins, 25c; tested, \$1.50. Safe arrival and satisfaction guaranteed. Crenshaw County Apiary, Rutledge, Ala.

ITALIAN QUEENS—Three-banded, select untested, guaranteed. Queen and drone mothers are chosen from colonies noted for honey production, hardness, prolificness, gentleness and perfect markings. Price, after July 1, \$1.25 each; 12, \$1.00 each. Special prices on larger orders. Send for circulars. J. H. Haughey Co., Berrien Springs, Mich.

CALIFORNIA QUEENS—100% perfect, large vigorous Italians, guaranteed layers. They are making a hit as proven by repeated orders and letters of appreciation. Am building a name and reputation. Try at least one. You will surely want more then. Price reduced. Select untested, 1, \$1.00; 6, \$5.50; 25, 90c each. H. Peterman. R. F. D., Lathrop, Calif.

I EXPECT to be ready to start shipping 3-lb. packages of bees with 1 frame, 1 untested queen at \$6.00; 2-frame nuclei with untested queen, \$4.50, about April 15. Young tested queen, 50c extra, or \$1.50 each. I think I was the second to ship packages of bees from this state and know how to serve customers. F. M. Morgan, Hamburg, La.

PHELPS' GOLDEN ITALIAN QUEENS combine the qualities you want. They are **GREAT HONEY-GATHERERS. BEAUTIFUL and GENTLE.** Virgins, \$1.00; mated, \$2.00; 6 for \$10.00, or \$18.00 per doz.; tested, \$5.00. Breeders, \$10.00 to \$20. Safe arrival guaranteed only in the U. S. and Canada. C. W. Phelps & Son, Binghamton, N. Y.

FOR MAY DELIVERY—One vigorous Italian queen, one frame emerging brood, one pound bees, price complete, \$5.00. Additional pound bees, \$1.00. Additional frame of brood, \$1.00. Banat mixed queens and bees 5% discount. After May 25 10% discount on all. Safe arrival guaranteed. Send 10% to book order. T. W. Livingston, Norman Park, Ga.

SPECIAL PRICE IN AUGUST. Latham will mail untested queens at \$1.00 each during August, if order is received three weeks in advance of mailing date. Allen Latham, Norwichtown, Conn.

HOLLOPETER'S ITALIAN QUEENS are bred up to a standard and not down to a price, yet price is low where quality and service count. Select untested each, \$1.25; 6, \$7.00; 12, \$13.00; 25, \$25.00. Write for mailing date and price on larger lots for requeening. Pure mating, no disease, safe arrival and satisfaction guaranteed. J. B. Hollopeter, Rockton, Pa.

LAST fall I had selected and tested six queens. Will use them as breeders this season in my queen yard. Their surplus honey capacity is from 216 lbs. to 288 lbs. each. I guarantee that every queen bought of me in 1922 is to be the daughter of one of these queens. Bees are three-banded. Mated, in June, \$1.25 each; 6, \$7.00; 12, \$13.50; 25 or more, \$1.00 each. After July 1, \$1.00 each straight. Julius Victor, Martinsville, N. Y.

FOR SALE—Three-banded queens and bees. Dr. Miller and my own stock. Three-frame nuclei and queen, \$5.50; 1 lb. bees and queen, \$2.75; 2 lbs. and queen, \$5.00; 3 lbs. and queen, \$6.25. All good empties returned at my charges. Queens, \$1.25 each; 6 for \$7.00; 12 for \$13.24 and over at \$1.00 each. Reared in the Hubam black belt sweet clover section. Scotts Sta., Ala., by Curd Walker, queen-breeder.

GOOD queens advertise themselves. It takes expensive advertising to sell poor queens, and if you don't believe it try it. We believed in former years we had the best three-banded queens obtainable. We still believe it. Our customers also tell us the same. Try a few. We have dropped the price in reach of all this year. We will have a few virgins for 50c when we have a surplus of them. We can furnish either from imported or Americanized mothers. Untested, \$1.00; selected, \$1.25; tested, \$2.00; selected, \$2.50. F. M. Russell, Roxbury, Ohio.

FOR SALE—250 to 350 colonies of fine Italian bees on good straight L combs with a full equipment of supplies for extracted-honey production. Also 47 acres land in Harrison County, Iowa, near town; has about 20 acres fine natural basswood grove. Has good improvements, especially for beekeeping. Probably as good an equipment as there is in the state. This is a good paying business, with outyards already established, everything complete. Caa give long time on part of the price, but would require \$8000 or \$9000 to swing it. Any one having that much capital to invest in a dandy country home and a paying business, will find it by addressing E. S. Miles & Son, Dunlap, Iowa.

MISCELLANEOUS.

MEDICINAL roots and herbs are very profitable to grow. We especially recommend growing Golden Seal which with good care will yield as high as \$10,000 per acre for each crop. It takes several years to mature but will average \$1000 a year. Special Crops, a monthly paper, tells how. Sample copy, 10c. \$1.00 per year. Address Special Crops Pub. Co., Box "G," Skaneateles, N. Y.

HELP WANTED.

WANTED—Man with some experience to work in our apiaries. State age, experience and wages. Answer fully in first letter. The Rocky Mountain Bee Co., Box 1319, Billings, Mont.

WANTED—Experienced beemen and helpers. able-bodied, willing workers. Operate over 1500 colonies in Texas and Arizona. Give age, habits, weight, height, former employment, experience. Reference and wages wanted. W. J. Stahman, El Paso County, Flint, Texas.

Bee Supplies

Send us your orders for honey containers
NOW.

—Special Prices on—

TIN AND GLASS HONEY CONTAINERS

2½-lb. Cans, per 100.....	\$4.25
5 -lb. Pails, per 100.....	7.00
10 -lb. Pails, per 100.....	10.50
60 -lb. Sq. Cans, per case of 2.....	1.25
2½-lb. Cans, per case of 24.....	1.25
5 -lb. Pails, per case of 12.....	1.10
10 -lb. Pails, per case of 6.....	.90

GLASS JARS.

8-oz. honey capacity, case of 24....	\$1.15
16-oz. honey capacity, case of 24....	1.35
32-oz. honey capacity, case of 12....	1.20

Write for prices on large quantities, stating number and sizes wanted.

Send us a list of your requirements of BEE SUPPLIES, and we will quote you prices that are right.

A. H. RUSCH & SON CO.,
REEDSVILLE, WIS.

NEW ENGLAND

Beekeepers will find a complete line of the best supplies here. Send in your order early and be ready for the harvest. Remember this is the shipping center of New England. Write for new catalog.

H. H. JEPSON

182 Friend Street.

BOSTON 14, MASS.

BEES—ITALIAN BEES—BEES

Full colonies with Italian queen at \$15; 2 for \$25. 3-frame nucleus with Italian queen at \$6.50. 3-lb. package with Italian queen at \$6.50. No disease. Safe arrival and satisfaction guaranteed.

VAN'S HONEY FARMS

Van Wyngarden Bros., Props. Hebron, Indiana.

QUEENS — QUEENS

LARGE, leather-colored 3-banded Italian queens; 10-years selection, bred for honey-gathering; gentle, hardy and long-lived. Price: Select untested, 1, \$1.25; 6, \$6.50; 12, \$12. After July 1: 1, \$1; 6, \$5; tested, \$1.50 each. Write for price on large orders. Free booklet, 'How to Transfer, Get Honey and Increase.'

J. M. GINGERICH, KALONA, IOWA.

INDIANOLA APIARY offers Italian Bees and Queens for following prices: Untested Queens, \$1.00 each; Tested Queens, \$1.50 each. Bees, per lb., \$2.00. Nucleus, \$2.00 per frame. No disease. Bees inspected.

J. W. SHERMAN,
Valdosta, Georgia.

Special Notice by A. I. Root

My article in the last issue, "Mend Your Own Tinware," has brought to light some wonderful developments which, I regret to tell you, must be put over until August for lack of space in this issue.

PATENTS

Practice in Patent Office and Court.
Pat. Counsel of The A. I. Root Co.
CHAS. J. WILLIAMSON,
McLachlan Bldg., Washington, D. C.

*Let us tell you about the California
Gold Medal Queens
The Queens with the Pedigree.*

Our hardy, immune, prolific strain of 3-banded leather-colored Italians. Developed from the world's best strains by careful selection and tested under California conditions for five years, with excellent results. My speciality will be breeding stock and every queen produced will receive my personal care and inspection. Now receiving orders for the season of 1922, which will be filled in the order of their receipt. Write for catalog and prices.

THE COLEMAN APIARIES

GEO. A. COLEMAN, Prop.
2649 Russell St., Berkeley, California.

MASON BEE SUPPLY COMPANY, Mechanic Falls, Maine.

From 1897 to 1922 the Northeastern Branch of The A. I. Root Company.

PROMPT AND EFFICIENT SERVICE
BECAUSE—Only Root's Goods are sold.

It is a business with us—not a side line.
Eight mails daily—Two lines of railway.

If you have not received 1922 catalog send name at once.

Goldens the Best

14 years in business should give you best queens possible. Untested, \$1, or 6 for \$5; in lots of 25 or more, 75c each. Virgins, 40c each, or 3 for \$1. Satisfaction and promptness my motto.

R. O. COX, Box 25, RUTLEDGE, ALABAMA.

A-T-T-E-N-T-I-O-N!

OHIO AND WEST VIRGINIA BEEKEEPERS

We are most favorably located for serving Central, Southern and Eastern Ohio, and also West Virginia. No matter where you are, full stocks, best shipping facilities and prompt attention will insure satisfaction. Free catalog.

MOORE & PEIRCE
Zanesville, Ohio—"Beeedom's Capital."

ROOT QUALITY BEES AND BEEKEEPERS' SUPPLIES.

Bees in the hive, in packages, and nuclei, three-banded leather-colored Italian queens. Let a beekeeper of long standing serve you in your requirements for 1922. Catalog on request.

O. G. RAWSON,
3208 Forest Place, East St. Louis, Illinois.

"Best" Hand Lantern



A powerful portable lamp, giving a 300 candle power pure white light. Just what the farmer, dairyman, stockman, etc. needs. Safe—Reliable—Economical—Absolutely Rain, Storm and Bug proof. Burns either gasoline or kerosene. Light in weight. Agents wanted. Big Profits. Write for Catalog. **THE BEST LIGHT CO.**
305 E. 5th St., Canton, O.

Established 1885.
Write us for catalog.

BEEKEEPERS' SUPPLIES

The Kind You Want and the Kind
That Bees Need.

We have a good assortment in stock of bee supplies that are mostly needed in every apiary. The A. I. Root Co.'s brand. Let us hear from you. Information given to all inquiries. Bees-wax wanted for supplies or cash.

John Nebel & Son Supply Co.
High Hill, Montgomery Co., Mo.



LEWIS 4-WAY BEE ESCAPES



Four exits from supers. Fits all standard boards. Springs of coppered steel. Made of substantial metal. Price each 18c prepaid. Made by

G. B. LEWIS COMPANY, Watertown, Wis., U. S. A.
For Sale by all Dealers.

Honey Containers

We have some interesting prices to offer on honey containers; send us a list of your requirements and let us quote you our prices.

2½-lb. cans in reshipping cases of 24 and crates of 100 and 500.

5-lb. pails in reshipping cases of 12 and crates of 100 and 200.

10-lb. pails in reshipping case of 6 and crates of 100.

1-gallon square or oblong cans with 1¾-inch screw cap in boxes of 6.

1-gallon square or oblong cans with 1¾-inch screw cap in crates of 100.

60-lb. square cans with 1¾-inch screw cap in cases of 2 cans.

16-oz. round glass jars in reshipping cases of 2 dozen.

6½-oz. tin top tumblers in reshipping cases of 4 dozen.

Shipping cases for comb honey for any style sections in the 24-lb. or 12-lb. size.

Send for our catalog showing full line of Bee Supplies.

AUGUST LOTZ CO.
BOYD, WISCONSIN.

Queens, More and Better Queens

Thrifty Three-band Stock. If it's "Hustlers" you want, get ours.

One customer from Indiana writes: "Some time ago I bought queens from you and I want to tell you that they were wonderful; 10 swarms average 220 lbs. extracted."

Another from Ontario says: "Your shipment of 20 2-frame nuclei reached me in fine condition, and I am much pleased with them." (Later he writes.) "I may add to what I said before, that the bees are very handsomely marked and very gentle, and I never saw bees build up so fast as your two-frame nuclei, in spite of very unfavorable weather ever since they arrived."

We can fill your orders by return mail at the lowest possible price that quality queens can be reared and delivered to you for, and with a guarantee that we will back up.

Guarantee: Freedom from disease, pure mating, safe arrival and complete satisfaction. Send full amount with order to keep down unnecessary correspondence and bookkeeping, and be assured of getting your queens as and when wanted.

PRICES: Untested, 1 to 12, \$1.00 each; 13 to 25, 90 cents each; 26 to 100, 80 cents each. Select untested, add 25c per queen. Tested queens and breeders quoted on application.

JENSEN'S APIARIES

R. F. D. NO. 3

CRAWFORD, MISS.

Another \$200.00 Queen

1 untested	\$ 1.00
12 untested	10.00
1 select untested...	1.50
12 select untested...	13.50

We will have no tested queens from this one ready for shipment before July 1, but can supply tested queens of the same strain at any time.

1 tested	\$ 1.75
12 tested	16.00
1 select tested	2.25
12 select tested	20.00

A descendant of the Root's famous two-hundred-dollar queen was shipped by us to Mr. C. B. Hamilton of Michigan on April 15, 1921, with a two-pound package of bees and produced 577 finished sections of comb honey that sold for \$168.00. (See Gleanings for March, page 167.) Mr. Hamilton says this queen kept 20 Standard Hoffman frames filled with brood during the season. **THIS BREAKS ALL RECORDS SO FAR.**

We have secured this queen for a breeder and we are now booking orders for her queens at the following prices, safe arrival, satisfaction and freedom from disease guaranteed.

J. M. CUTTS & SON, R. F. D. 1, MONTGOMERY, ALA.

QUEENS

Nordan's Three-Banded Italian Queens and Bees (Three-Banded Only)

BEEKEEPERS: If you have one colony or five thousand I want you to give my superior strain of three-banded Italians a trial. I am fixing the price right so you can. I am not a new man come out; I have been in business almost all of my life for honey production and improving my strain. I have selected and bred my strain from the finest mothers in my yards which were selected for all of the good qualities. For over a quarter of a century I spared neither labor nor money in developing my strain until now I can put queens and bees on the market which I know are surpassed by none and I guarantee that money cannot buy any better in the U. S. A. When you introduce my queens, beekeepers, you can feel assured you have a bee that cannot be surpassed by any in U. S. A., which is backed by over a quarter of century improving and selecting from the finest mothers and mated to drones that are selected.

NOTICE—My strain are guaranteed immune to

Bee Paralysis. I have found the foundation of Bee Paralysis, which is in the queens, and now after years of selecting and testing I guarantee my strain resistant to it. Bee Paralysis is prevalent over the South. I will gladly replace any bees I ship that Bee Paralysis breaks out in.

QUALITY AND SATISFACTION.—Each and every queen I send out, if it be one or five thousand, is guaranteed to give absolute satisfaction; otherwise advise me and I will gladly send more to take their places. You don't run any risk. A record of over a quarter of a century of fair and honest dealings. You get your money's worth as nearly as possible plus a very small profit, and my price is fixed to a very small profit.

All queens select; if they do not prove up pleasing to the eye, they are not shipped. I do not price a select untested and ship an untested. I give the greatest care possible to produce the finest queens possible.

PRICES ON QUEENS AND PACKAGES.

	1	6	12	100
Select Untested	\$0.75	\$4.25	\$8.00	\$60.00
Tested	1.00	5.70	10.80	85.00

Packages Full Weight.

1-pound package with queen	1 to 12, \$2.35 each; 12 or more, \$2.30
2-pound package with queen	1 to 12, \$3.85 each; 12 or more, \$3.80

I can make shipment when you want them of either queens or packages.

I appreciate your business large or small.

Reference: Alabama Bank and Trust Co., Montgomery, Alabama.

M. S. NORDAN - MATHEWS, ALABAMA

Queens - Golden - Queens

Have you secured all you need? I have them as fine as you can secure anywhere at a reasonable price. Untested, \$1.00; six, \$5.50; 12, \$10. If they don't give you satisfaction and you write me, I will make it satisfactory to you.

E. A. SIMMONS, GREENVILLE, ALA.

Merrill's Quality-Bred Italian Queens

Famous Three-banded and Golden Queens.

They are pleasing others; why not you? I sell good queens for less. Try them and see for yourself.

1 Untested Queen.....	\$1.00
6 Untested Queens.....	4.75
12 Untested Queens.....	9.00

These are selected queens, mated, and laying. Guaranteed to please you.

G. H. Merrill

Route 5.

GREENVILLE, S. C.

75c EACH

One or more SELECT Untested Three-Banded Italian Queens. No poor-appearing queen will be sent. A satisfactory sale guaranteed. No disease.

D. W. HOWELL, SHELLMAN, GEORGIA.

QUEENS

OUR OLD RELIABLE THREE-BANDED ITALIANS ARE HONEY GETTERS.

They are gentle, prolific, and very resistant to foul brood. Orders booked for one-fourth cash. Safe arrival guaranteed. Circular free.

PRICES

	1	6	12
Untested	\$1.00	\$5.50	\$10.00
Select Untested	1.25	6.50	12.50
Tested	2.25	12.50	24.00
Select Tested			\$3.00 each

See our Dec. and Jan. Advertisement.

JOHN G. MILLER

723 C Street, Corpus Christi, Texas.

ATTENTION, PRODUCERS! NEW HONEY CROP

We are ready to receive your new crop advices, sending us samples and state price wanted, how packed, and quantity can ship. Terms, cash on arrival.

HOFFMAN & HAUCK, INC., WOODHAVEN NEW YORK

Lockhart's Silver-gray Carniolans

"LINE BRED" for the past 34 years. They are VERY hardy, gentle, prolific, great workers, and builders of VERY WHITE comb, and use mostly wax in place of propolis. Prices of queens for 1922: Untested queens, \$1.00; select untested, \$1.50; tested, \$2.00; select tested, \$3.00. Breeders, \$5.00, \$10.00. Safe arrival guaranteed in U. S. and Canada. No foul brood here.

F. A. LOCKHART & COMPANY, LAKE GEORGE, NEW YORK

When You Think of Queens, Think of

Thagard's Italian Queens Bred for Quality

Each day the demand grows greater for our imported Three-Bands. Why? Because for the next few years there will be no new blood imported from Italy. In buying our queens you are assured of getting imported stock and free of disease. Every queen is bred and selected from our best breeders. They are hardy, gentle, disease-resisting and honey producers. Try some of our queens, test them out against any you may obtain anywhere, and **NOTE THE RESULTS.**

Untested Queens, each—1 to 11, \$1.00; 11 to 49, 85c;
49 to 99, 75c; 100 or more, 70c.

The V. R. Thagard Company, Greenville, Alabama

NEWMAN'S QUEENS

Originated from the world-famous Moore strain of Italians. Absolutely first quality and fully guaranteed, no disease. Satisfaction and safe arrival.

Untested: 1, \$1.25; 6, \$6.00; 12, \$11.00.
Sel. Unt.: 1, \$1.75; 6, \$8.00; 12, \$15.00.

Circular free.

A. H. NEWMAN, Queen-Breeder.
Morgan, Kentucky.

Queens of Quality

From Tennessee

3-BAND ITALIANS ONLY.

Untested, \$1.00 each; six for \$5.00.
\$9.00 per dozen. Now shipping by return mail. Circular free.

J. I. BANKS, Dowlletown, Tenn.

—QUEENS OF— MOORE'S STRAIN

OF ITALIANS PRODUCE WORKERS

That fill the supers quick
With honey nice and thick.

They have won a world-wide reputation for honey-gathering, hardiness, gentleness, etc. I am now filling orders by return mail. Untested queens \$1.25; 6, \$6.50; 12, \$12. Select Untested, \$1.50; 6, \$8.00; 12, \$15. Safe arrival and satisfaction guaranteed.

J. P. MOORE, Queen Breeder
Route 1, MORGAN, Kentucky.

Michigan Bred Three-Band Italian Queens, Untested.

July Delivery.

1 to 9, \$1.40 ea.; 10 to 100, \$1.30 ea.

August Delivery.

1 to 9, \$1.25 ea.; 10 to 100, \$1.15 ea.

Select Tested after June 20, \$2.00 ea.

Virgins after June 1st, 1 to 9, 60c ea.;

10 up, 55c ea.

If you must have untested during June send elsewhere, as old customers have ordered my June outfit of untested.

D. A. DAVIS, Birmingham, Michigan.

I. F. MILLER'S STRAIN ITALIAN QUEEN BEES

From my best SELECT BREEDERS; gentle, roll honey in, hardy, winter well, not inclined to swarm, three-banded, 28 years' breeding experience. Satisfaction guaranteed. Safe arrival in U. S. and Canada.

1 Untested, \$1.25; 6, \$7.00; 12, \$12.00.

1 Sel. Unt., \$1.50; 6, \$8.00; 12, \$14.00.

I. F. MILLER,

Brookville, Pa., 183 Valley.

REDUCED PRICES

Beginning July 1st, we will sell queens the balance of the season at the following prices:

Untested: One to 9, 90c each; 10 to 19, 80c each; 20 or more, 75c each. Tested: \$1.25 each. Three-banded Italians.

There are no better queens than these. They have again led the country in the amount of surplus honey stored.

MURRY & BROWN,
Mathis, Texas.

Send orders to H. D. Murry, Mathis, Texas.

SCOTT QUEENS ARE GOOD QUEENS

MY QUEENS ARE GETTING RESULTS.

Among my hundreds of colonies and for my customers. One writes: "Dear Mr. Scott: Please book me for ½ doz. queens. Those I got from you last season have made 150 lbs. comb honey each so far this season. Yours truly."—(Name on request.)

GOLDEN OR THREE-BANDED QUEENS.

After July 1: One, \$1.25; six, \$7.00; dozen, \$13.00. They are bound to please. Pure mating and safe arrival. Prompt shipments. Circular on request.

ROSS B. SCOTT, LA GRANGE, INDIANA.

FREE QUEENS

3-Banded

Goldens

For July to make new customers we offer our fine strain of honey-gatherers at the lowest prices possible, and for ten of the highest honey records made from colonies headed with our queens, we will give one fine tested 3-banded or Golden queen free to each. For quick service send us your order. Now is the time to requeen.

Quality Queens—July Prices.

Untested, 1 to 12.....\$0.85 each
Sel. Untested, 1 to 12..... 1.15 each
Sel. Tested 2.00 each

Wings clipped free on request. Entire satisfaction and safe arrival guaranteed in U. S. and Canada.

Ohio Valley Bee Company
CATLETTSBURG, KY,



ONLY

90c A QUEEN

QUEENS BY RETURN
MAIL

Mr. Beekeeper:—We have the stock, equipment and experience, and can give you prompt, satisfactory service. We are not going to say that we have the best bees in U. S. A., but we do say that we have as good as can be bought for the money. Give NORMAN BROS.' 3-banded Italian bees and queens a trial and see for yourself. You risk not a brown penny; if you are not satisfied, notify us and we will replace or refund your money. Isn't this a fair proposition to any one that purchases queens and bees? Our bees are hardy, prolific, gentle and honey-gatherers.

Prices: 1 6 12 100
Untested Queens \$0.90 \$5.00 \$9.00 \$70.00
Select Untested. 1.15 6.00 11.00 85.00
Tested Queens... 2.00 each
Select Tested... 2.50 each
One 2-lb. package bees, \$3.00; 12 or more, \$2.85 each. Add prices of queens wanted. We guarantee pure mating, safe arrival and free from all diseases.

Norman Bros. Apiaries

NAFTEL, ALABAMA.

Big Reduction

--ON--

Bee Supplies

Shipping cases.....\$30.00 per 100
Slotted section-holders...\$3.00 per 100
Sections, 1 $\frac{1}{8}$, No. 1...\$10.00 per 1000
Job lots of frames, regular size.....\$3.00 per 100
Standard Hoffman frames, 9 $\frac{1}{8}$ deep\$4.50 per 100
Unspaced wedged top-bar frames, 9 $\frac{1}{8}$ deep.....\$2.75 per 100

Send for Catalog and Price List.

CHARLES MONDENG

146 Newton Avenue N. and
159 Cedar Lake Rd.
MINNEAPOLIS, MINN.

That Pritchard Queens

AND

Pritchard Service

made a hit last season is proven by the many letters of appreciation and repeated orders received. This year we are BETTER PREPARED WITH a LARGER OUTFIT AND REDUCED PRICE.

THREE-BANDED ITALIANS.

Untested\$1.25 each; 6 for \$7.00
Select Untested.\$1.50 each; 6 for \$8.50
Select Testedeach \$3.00

Queens clipped free on request. We are booking orders now. Send yours at once and we will do our best to ship on date you desire. Acknowledgment and directions for introducing sent on receipt of order. Safe arrival and satisfaction guaranteed. Untested ready about June 1.

ARLIE PRITCHARD

R. F. D. No. 3.

MEDINA, OHIO



IMPORTED MOWING BLADES

And Sickles with DANGEL cutting edge "THE MARUGG SPECIAL" are praised by thousands of users in the United States. Used by leading apiarists. Write for particulars to THE MARUGG COMPANY, Dept. B, TRACY CITY, TENN.

HONEY

We are in excellent position to serve beekeepers who do not produce enough Honey to supply their trade. We have a big stock of fine table honey of various grades always on hand.

In 60-lb. Tins Crystallized—Water White Orange, 15c; White Sage, 14c; Extra L. A. Sage, 12c; Buckwheat, 10c.

GLASS AND TIN HONEY CONTAINERS.

2½-pound cans, 2 dozen reshipping cases.....\$1.45 case; crates of 100, \$4.50
5-lb. pails (with handles), 1 dozen reshipping cases....\$1.35 case; crates of 100, \$7.00
10-lb. pails (with handles), ½ dozen reshipping cases..\$1.10 case; crates of 50, \$5.25
60-lb. tins, 2 per case.....New, \$1.20 case; used, 25c

White Flint Glass, With Gold Lacquered Wax Lined Caps.

8-oz. honey capacity..\$1.50 per carton of 3 doz.

16-oz. honey capacity..\$1.40 per carton of 2 doz.

Qt. 3-lb. honey capacity..\$1 per carton of 1 doz.

HOFFMAN & HAUCK, Inc.
WOODHAVEN, NEW YORK.

CENTRALLY

LOCATED

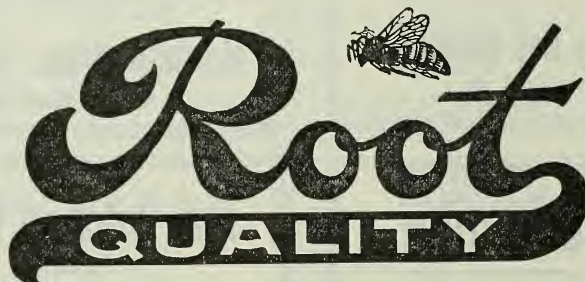
TO

SERVE

NEW

ENGLAND

BEEKEEPERS.



BEE SUPPLIES

F. COOMBS & SONS, BRATTLEBORO, VERMONT

ORDERS

FILLED

PROMPTLY.

CATALOG

ON

REQUEST.

DON'T DELAY---GET OUR PRICES
WE SAVE YOU MONEY

"falcon"

SUPPLIES --- QUEENS --- FOUNDATION

W. T. FALCONER MFG. COMPANY

FALCONER (Near Jamestown) NEW YORK

"Where the best beehives come from."

QUIGLEY QUALITY

Italian Queens and Bees are produced by double grafting, producing queens of superior quality and long-lived bees, filling your big hives with bees. Hustlers, hardy, wintering on summer stands. No disease; 36 years in this location. Purity and satisfaction guaranteed.

Untested—Each, \$1.25; 6 for \$7.00; 12 for \$12.00. Select Untested, add 50c each extra. Tested, \$2.00 each.

Send for circular.

E. F. QUIGLEY & SON
UNIONVILLE, MISSOURI.

PATENTS --- TRADEMARKS

I offer prompt, personal and expert professional service. 10 years' experience. Write for terms. **LESTER SARGENT**, Patent Attorney, 524 Tenth St., N. W., Washington, D. C.



The "BEST" LIGHT

Positively the cheapest and strongest light on earth. Used in every country on the globe. Makes and burns its own gas. Casts no shadows. Clean and odorless. Absolutely safe. Over 200 styles. 100 to 2000 Candle Power. Fully Guaranteed. Write for catalog. **AGENTS WANTED EVERYWHERE.**
THE BEST LIGHT CO.
306 E. 5th St., Canton, O.

\$797 Buys This 7-Room Home

Price includes lumber, millwork, paint, hardware, roofing, etc. House contains large living room, dining room, kitchen, three bedrooms with closets and bath. Materials cut to fit. Our system makes it easy for anyone to erect this attractive home. Send for special circular No. 2103.

THE ALADDIN COMPANY
BAY CITY MICHIGAN



World's Best Roofing

at Factory Prices

"Reo" Cluster Metal Shingles, V-Crimp, Corrugated, Standing Seam, Painted or Galvanized Roofing. Siding, Wallboard, Paints, etc., direct to you at Rock-Bottom Factory Prices. Save money—get better quality and lasting satisfaction.

Edwards "Reo" Metal Shingles

have great durability—many customers report 15 and 20 years' service. Guaranteed fire and lightning proof.



LOW PRICED GARAGES

Lowest prices on Ready-Made Fire-Proof Steel Garages. Set up any place. Send postal for Garage Book, showing styles.
THE EDWARDS MFG. CO.
733-783 Pike St. Cincinnati, O.

Free Roofing Book

Get our wonderfully low prices and free samples. We sell direct to you and save you all in-between dealer's profits. Ask for Book No. 183

FREE
Samples &
Roofing Book

Better Way to Garden



Don't do garden work the slow back-breaking way. You can grow a far better garden, easier and with much less time and work.

BARKER

WEEDER, MULCHER AND CULTIVATOR THREE MACHINES IN ONE

Simply push the BARKER along the rows (like a lawn mower). Eight blades revolving against a stationary underground knife destroy the weeds and in same operation break up the surface crust into a level, porous, moisture-retaining mulch. Aerates soil. Intensive cultivation. "Best Weed Killer Ever Used." Has leaf guards, also shovels for deeper cultivation. A boy can run it—do more and better work than 10 men with hoes.

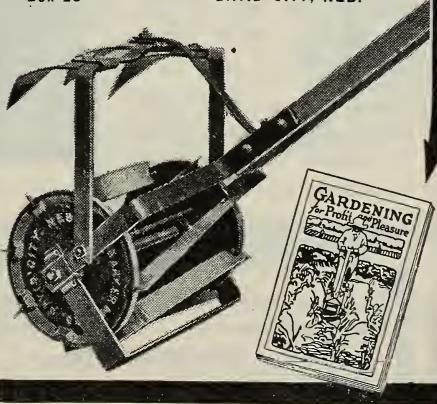
Write Us Today
for FREE Booklet.

Let us tell you about this machine and how to raise bigger, better gardens—make gardening a pleasure. A valuable book, illustrated. Gives prices, etc. A card brings it. Write us today. Use coupon below.

BARKER MFG. CO.

Box 23

DAVID CITY, NEB.



Barker Mfg. Co., Box 23, David City, Neb.

Gentlemen: Send me postpaid your free booklet and Factory-to-User offer.

Name

Town

State..... Box or RFD.....

QUEEN PRICES REDUCED!

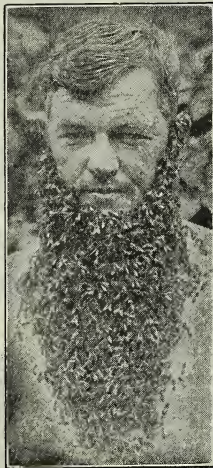


Owing to my discovery of a law in queen-rearing heretofore unknown to me, whereby practically all queen-cells are accepted by bees in nuclei, rendering queen production more economical, I want to share this saving with my customers in the form of a price reduction to take effect July first. This new feature works in perfect harmony with bee nature and readily accepted cells are the result. The emerging virgin is gladly received by the bees and given the best of care, so that she develops and mates from one to two days earlier than was the case before I employed this new law. This feature and all others used by me will be fully explained in my new book on Queen-Rearing that will be published some time before next January.

Owing to these new methods, I shall be able to fill all orders promptly and guarantee every queen to

be first class in every respect and will gladly replace any that proves otherwise.

Our original stock was obtained from Mr. Doolittle, and since that time I have carefully selected for prolificness, vigor and color, at the same time keeping the bees as gentle as is possible without their losing any of their pep.



"Alice, the queen I got from you, has produced my finest colony out of fourteen competitors. I have failed to find the equal of her bees for work, size, beauty and gentleness. Her prolificness is wonderful. Twenty frames are kept filled with brood and two supers filled with honey since May 1, one month."
—Thornton Bogert, Cincinnati, Ohio.

A card will bring our queen catalog and folder describing our introducing cage that removes the uncertainty in queen introduction.

PRICES AFTER JULY FIRST.

1 to 4 inclusive.....	\$2.00 each	10 or more.....	\$1.90 each
5 to 9 inclusive.....	\$1.95 each	Breeders	\$10.00 each
Introducing Cages.....	75 cents each		

JAY SMITH

ROUTE THREE

VINCENNES, INDIANA

FOREHAND'S THREE BANDS

The Thrifty Kind

For over a quarter of a century our bees and queens have been giving satisfaction to America's greatest honey producers.

Careful selecting has brought our strain of bees up to a standard **SURPASSED BY NONE BUT SUPERIOR TO MANY.** We are constantly selecting to improve the thriftiness, hardiness, gentleness and beauty of our bees.

Our queens are bred from mothers imported from Italy in the spring of 1921, or the daughters of queens imported in 1920. Cross breeding with our domestic strain lightens the color of the imported bee and brings them up to our standard, which is surpassed by none but superior to many. We breed into them thriftiness and hardiness.

We guarantee our bees to be purely mated and to give satisfaction the world over. Safe arrival is guaranteed in the United States and Canada.

—PRICES—

UNTESTED QUEENS EACH—1, \$1.00; 6 to 11, 90c; 12 to 49, 85c; 50 to 99, 75c; 100 to 299, 70c; 300 up, 65c.

POUND BEES—1 one-lb. pkg., \$2.00; 25 and over, \$1.90; 1 two-lb. pkg., \$3.50; 25 and over, \$3.25; 1 three-lb. pkg., \$5.00; 25 and over, \$4.75. Catalog sent free.

W. J. Forehand & Sons, Fort Deposit, Ala.

MOTT'S NORTHERN-BRED ITALIAN QUEENS

Are all selected queens this season. After July 1st, \$1.00 each. Sel. Guaranteed pure mated, or replace free, \$1.50. Sel. Tested, \$2.50. Virgins, 60c each. Plans, "How to Introduce Queens" and "Increase," 25c.

E. E. MOTT, GLENWOOD, MICH.

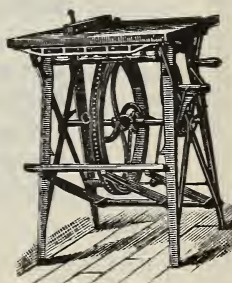
BARNES' HAND & FOOT POWER MACHINERY

This cut represents our combined circular saw, which is made for beekeepers' use in the construction of their hives, sections, etc.

Machines on Trial

Send for illustrated catalog and prices.

W. F. & JOHN BARNES CO.
545 Ruby Street
ROCKFORD, ILLINOIS.



BANKING BY MAIL AT

A.T. Spitzer
PRES.

E.R. Root
VICE PRES.

E.B. Spitzer
CASHIER

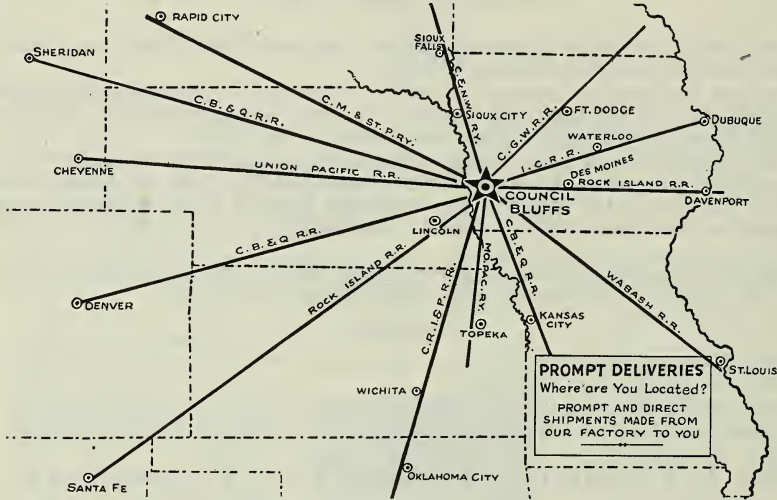
A SERVICE BANK.

The SAVINGS DEPOSIT BANK COMPANY has always been essentially a SERVICE BANK depending for its growth upon what it does for its patrons—and its 30 years of success have proved the soundness of its policy. Deposits cordially welcomed by mail.

4%

The SAVINGS DEPOSIT BANK CO.
THE HOME OF THE HONEY-BEE MEDINA, OHIO

WANT PROMPT SHIPMENTS?



Time is the essential factor in your success in the days just ahead.

Our dealers are getting replenishment orders over this network of roads, in quantity lots. There is a Root dealer near you. Look him up.

Today these dealers and the Council Bluffs organization are ready to serve you, completely and quickly.

AT YOUR SERVICE

FOSTER HONEY & MERC. CO.,
Boulder, Colo.

THE BORTON APIARIES,
Scotland, S. D.

P. J. POOLEY,
Mitchell Trans. & Storage Co.
Mitchell, S. D.

C. F. BUCK,
Augusta, Kans.

GRISWOLD SEED CO.,
Lincoln, Nebr.

THE WERTZ SEED CO.,
Sioux City, Ia.

THE RAPID CITY IMPLEMENT CO.,
Rapid City, S. D.

THE RODMAN COMPANY,
301 Delaware Street,
Kansas City, Mo.

CARHART LUMBER CO.,
Wayne, Nebr.

LODGE GRASS APIARIES,
Lodge Grass, Mont.

THE A. I. ROOT COMPANY OF IOWA
COUNCIL BLUFFS, IOWA

Superior

Italian

Queens

We have had more orders than we could fill each year, yet we are striving just as hard to produce better queens each year as we would if we had more queens than orders, and we believe that each year we are able to produce queens of a little higher quality. We are not in the business for the time being, or to get every dollar out of it we can, but because we like to rear queens and we want to give you value received for your money. After we have reared the best possible queens for you, we want to put them to you, not just alive, so we can get your money, but in the best possible condition.

OUR GUARANTEE: This simply means that, if any queen we sell is not satisfactory in every respect, we will replace her. Our breeding stock and methods of production are such that we can give this guarantee.

Untested One, \$1.00; ten or more, \$0.75 each.

Tested One, 1.75; ten or more, 1.50 each.

We have 2,000 Tested Queens, reared late last fall, that we will supply at our convenience at \$1.00 each, or ten or more at \$0.80 each.

Send for big bargain list of **BEE SUPPLIES**. New sixty-pound cans, two to the case, in lots of fifty cases, at 91c.

The Stover Apiaries, Mayhew, Miss.

Remember

HOLLOPETER'S QUEENS are bred up to a STANDARD and not down to a PRICE. Yet the price is low when quality and service are thought of. Twenty-four years of beekeeping experience, eleven years a commercial queen-breeder.

SELECT ITALIAN QUEENS.

Untested, each, \$1.25; 6, \$7.00; 12, \$13.00; 25, \$25.00. Write for mailing date and price on larger quantity for increase and requeening.

WE GUARANTEE

safe arrival in U. S. and Canada, pure mating, no disease, and satisfaction.

J. B. HOLLOPETER

ROCKTON - - - PENNA.

High Quality Three-Banded Italian Queens

By Return Mail

Untested Queens—1, \$1.00; 6, \$5.50; 12, \$10.00; 25, \$20.00. Select Untested—1, \$1.15; 6, \$6.20; 12, \$11.40; 25, \$22.25. Select Tested—\$1.75 each.

PACKAGE BEES

1-lb. package, \$1.75; 2-lb. package, \$2.85; 3-lb. package, \$3.80. Add price of queen wanted with package. Safe delivery and fullest satisfaction guaranteed. Health certificate with each shipment.

FRANK BORNHOFFER

MT. WASHINGTON - - - OHIO.

Collier's Bees and Queens

Breeding Queens Imported
from Italy.

THREE-BANDED ITALIANS ONLY.

Shipped by return mail.

Let me have your order for the 1922 season. My queens are bred by men who know how. Every order given my personal attention. All queens reared in strong two-story, ten-frame hives, under natural conditions.

Improve your weak, run-down colonies by using young, vigorous three-banded Italian Queens from my imported stock.

You take no risk buying from Collier. If you are not satisfied I will replace or refund your money. Safe delivery guaranteed.

Prices: Untested, 1, 75c; 6, \$4.25; 12, \$8.00; 100 for \$60.00. Select Untested: 1, \$1.00; 6, \$5.50; 12, \$9.50; 100, \$75.00. Tested Queens, \$1.50 each. Select Tested, \$2.00. Pound package with select untested queen: 1-lb. package, \$3.00; 2-lb. package, \$4.00 each. Safe delivery guaranteed in U. S. and Canada.

D. E. COLLIER

RAMER - - - ALABAMA

THREE-BANDED

QUEENS

If You Have Tried the Rest,
Now Try the BEST.

Our bees are so busy making honey and rearing queens that we haven't time to tell you about all the good qualities of our queens. But for gentleness, hardiness and honey-gathering qualities you will find them unexcelled. A trial order is most convincing. Remember that every queen we sell is fully guaranteed.

PRICES.

Untested...\$1.00; 12, \$11.40; 25, \$22.50
Sel. Unt... 1.25; 12, 13.50; 25, 25.00
Sel. Tested 2.25; 12, 24.00; 25, 45.00

Circular free.

HERMAN McCONNELL
ROBINSON, ILLINOIS

QUEENS

ITALIANS - CARNIOLANS - GOLDENS

We ship thousands of queens and thousands of pounds of bees all over the United States and Canada every year.

2-comb regular Nuclei, no extra bees	\$3.75
3-comb regular Nuclei, no extra bees	5.25
2-comb regular Nuclei with 1 pound extra bees	5.25
1-comb regular Nuclei with 2 pounds extra bees	5.25
1-lb. pkg. bees, \$2.25 ea.; 25 or more	2.15
2-lb. pg. bees, \$3.75 ea.; 25 or more	3.60
3-lb. pkg. bees, 5.25 ea.; 25 or more	5.00

QUEEN FREE with all of the above packages except 1-pound size; will furnish them at half price with these.

PRICES OF QUEENS ONLY.

1 Untested Queen, \$1.05 each; 25 or more. 91c each; per 100	\$85.00
1 Select Untested, \$1.19 each; 25 or more, \$1.05 each; per 100	95.00
1 Tested Queen, \$1.57; 25 or more, each	1.40
1 Select Tested Queen, \$1.85 each; 25 or more, each	1.57
Breeders, each	\$5.00, \$10.00 and 15.00

Send for FREE circular.

NUECES COUNTY APIARIES. Calallen, Texas
E. B. AULT, Prop.

Queens Queens

Knight's Three-Banded

Give them a trial and be added to my book of satisfied customers.

Prices for Balance of Season.

1 Select Untested\$1.00
5 Select Untested 4.75
10 Select Untested 8.50
Tested Queens, each 2.00

For large quantities write for prices. Have the bees, men and equipment to handle rush orders by return mail. Pure mating and satisfaction guaranteed. It is left with customer to say what is satisfaction. No disease.

JASPER KNIGHT

HAYNEVILLE - - ALABAMA

July 1, 1922.
Syracuse, N. Y.

Dear Mr. Beekeeper:

We have had a most extraordinary month, and we have done our best to fill your orders. We have now a new stock of goods on hand and at the present time can give you our best service.

July is always a busy time for beekeepers. They want their goods promptly. We are here to serve you. Send in your order today.

Yours for a season that will be the "best ever."

F. A. SALISBURY,
1631 W. Genesee Street,
Syracuse, New York.

Bumper



Crops

Not the
Price-

QUALITY COUNTS

BREEDING WILL TELL!

Queens from Extra Selected Breeders. Proven by use. HIGHLY PROLIFIC. Hardy and Disease-RESISTING.

Untested, \$1.50, 12 or more, \$1.25; 100 or more, 90c.

Tested, \$2.50; 12 or more, \$2.00.

Prompt replacements, Fair Dealing. We rigidly adhere to the above.

---The---

Southland Apiaries

Box 585, Hattiesburg, Miss.

Guaranteed



Satisfaction

Northwestern Headquarters for Italian Queens

The queen is the life of the colony. You cannot afford to keep poor queens or a poor strain of bees. I have been in the bee business for more than twenty years and have made every effort to improve the honey-gathering qualities of my bees by purchase of breeders and by selective breeding. I believe that my bees are unsurpassed by any. When you buy Untested Queens from me you are getting select untested queens. I will begin mailing queens about June 1.

Prices June 1 to October 1:	1	6	12	50	100
Untested Italian Queen.....	\$1.25	\$7.00	\$12.50	\$50.00	\$95.00
Tested Italian Queen.....	2.00	11.00			

I have no pound packages or nuclei for sale.

J. D. HARRAH, Route 1, FREEWATER, OREGON

Queens

Bees

Forehand's 3-Bands One Queen for \$1.00 They Satisfy. Why?

Because they are guaranteed to be as good as money can buy. Not a cheap queen but a queen of the best at a cheap price. Every queen guaranteed to reach destination in first-class condition, to be purely mated and give perfect satisfaction or money back. Orders filled by return mail.

Untested: 1 to 25, \$1.00 each; 25 to 50, 90c; 50 to 100, 80c each. Select Untested, 1 to 25, \$1.25 each. Tested, \$2.00 each, or 12 for \$20.00.
One lb. pure Italian bees with queen, \$3.00.
Two lbs. pure Italian bees with queen, \$5.50
Ten of more 2-lb. packages, \$5.00 each.

N. FOREHAND, RAMER, ALABAMA.

Requeen Now If You Can!

Right now is the time to begin your plans for securing the maximum crop of honey next season.

Requeening with young, prolific queens of a known, honey-gathering strain is one of the most important factors in being a successful honey producer. Young, prolific queens introduced now will mean two things: First, strong colonies to go into winter quarters. Second, strong colonies to gather next season's crop of honey.

For more than 50 years we have been breeding up to the Root Quality Queens and Bees. We do not believe that better bees or queens are reared anywhere in the world today. What we try to do, is to rear THE BEST.

We breed queens with special view to the honey-gathering quality of their bees. We have had this one chief purpose in breeding constantly in mind all these years. We have it uppermost in our minds today.

THE DIFFERENT GRADES OF QUEENS.

Italian queens are distinguished from blacks by three yellow bands on the upper part of the abdomen. Leather-colored Italians show three stripes of dark-yellow leather color.

An untested queen is one which is sold after she is found to be laying, not having been previously tested.

A tested leather-colored queen is one which has been examined by the breeder and her bees found to be uniformly marked with at least three dark-yellow bands.

Select queens of any of the grades are those which show better color, size, shape, etc. Frequently select untested queens develop into fine breeding queens.

PRICE OF QUEENS—Up to October 1.

	1 to 9.	10 to 24.	25 to 49	50 to 99.	100 or more.
C312000—Untested	\$1.50 each.	\$1.40 each.	\$1.35 each.	\$1.25 each.	\$1.15 each.
C313000—Select Untested...	2.00 each.	1.90 each.	1.80 each.	1.70 each.	1.60 each.
C314000—Tested	2.50 each.	2.35 each.	2.25 each.	2.10 each.	2.00 each.
C315000—Select Tested	3.00 each.	2.85 each.	2.70 each.	2.25 each.	2.40 each.

Note the large saving to be made by taking advantage of our low prices on quantity lots.

OUR GUARANTEE ON QUEENS.—We guarantee safe arrival of queens sent in mailing cages. We agree to refund the money or replace the queen if the one first sent arrives dead; provided the beekeeper receiving the dead or unfit queen returns her at once and in her own shipping cage, properly marked with name and address of sender. No delay in returning the queen can be permitted. This guarantee applies only on queens sent to customers in the United States and Canada.

PRICES OF BEES IN COMBLESS PACKAGES BY EXPRESS.

Up to August 15.

C310700—1-pound package	\$3.00; 25 or more packages, \$2.85 each.
C310800—2-pound package	5.00; 25 or more packages, 4.75 each.
C310801—3-pound package	7.00; 25 or more packages, 6.60 each.

Add price of queen wanted to package price given above.

OUR GUARANTEE ON BEES SHIPPED BY EXPRESS.—We agree to make good any loss to bees in transit, provided consignee secures such notation as will cover any apparent damage done while in transit, on express delivery receipt, signed in full by express agent, receipt to be mailed to us at once with letter giving full particulars, on receipt of which replacement will be made immediately. The guarantee does not apply on bees shipped to foreign countries.

Mail all queen and bee orders direct to Medina or to our nearest branch office.

THE A. I. ROOT COMPANY
WEST SIDE STATION MEDINA, OHIO, U. S. A.

NEW PRICES

On Friction Top Cans and Pails

We quote as follows:

	25	50	100	200	500	1000
2½-lb. cans.....	\$1.15	\$2.15	\$4.10	\$7.75	\$18.75	\$36.00
5 -lb. pails.....	1.90	3.50	6.50	12.00	28.25	55.50
10 -lb. pails.....	2.75	5.00	9.50	18.00	43.00	83.00

All packed in fibre containers. They keep neat and clean till you use them. Prices F. O. B. cars Lansing and not from some distant shipping point.

Send in Your Order

FIVE-GALLONS CANS—1¾-inch screw top, packed two in a case.
Prices as follows:

Each, \$1.40; 10 Cases, \$13.00; 25 Cases, \$30.00; 50 Cases, \$57.50;
100 Cases, \$110.00.

F. O. B. cars Lansing, not from some distant shipping point.

Send in Your Order

A GRADE TIN PASTE—Just what you want for attaching labels to tin and glass containers. It sticks. Prices as follows:

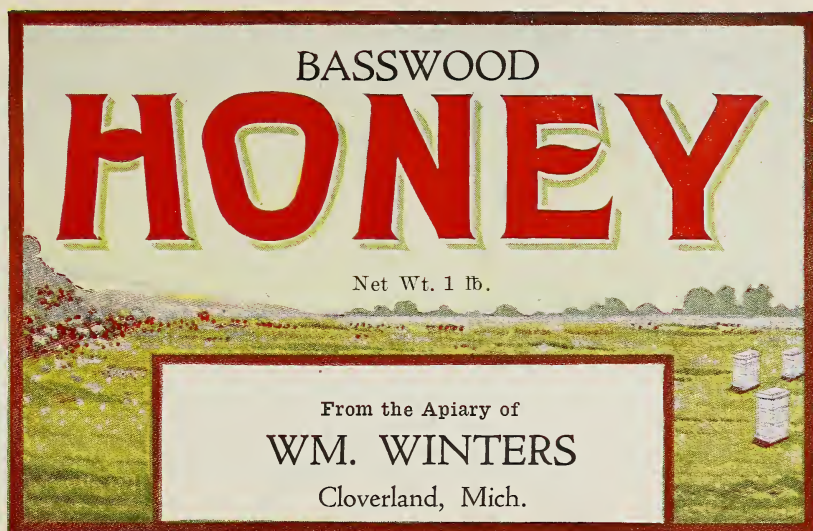
1 Pint, 25c; 1 Quart, 45c; 1 Gallon, \$1.50.

Postage extra. Remember, IT STICKS.

M. H. HUNT & SON

510 North Cedar Street

LANSING, MICHIGAN



No. 110.—250 for \$2.05; 500 for \$2.80; 1000 for \$4.00; each additional 1000, \$2.40.



No. 116.—250 for \$2.05; 500, \$2.80; 1000, \$4.00; each additional 1000, \$2.40.

The printing in black may be changed to suit you.

NEW LABELS

The A. I. Root Co., West Side Sta., Medina, Ohio.

NEW PRICES

The printing in black may be changed to suit you.



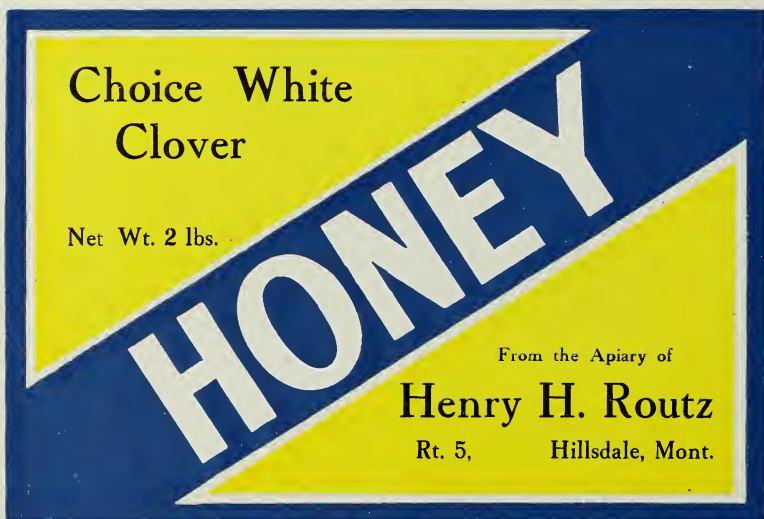
No. 106.—250 for \$3.00; 500 for \$3.75; 1000 for \$5.00; each additional 1000, \$3.50.



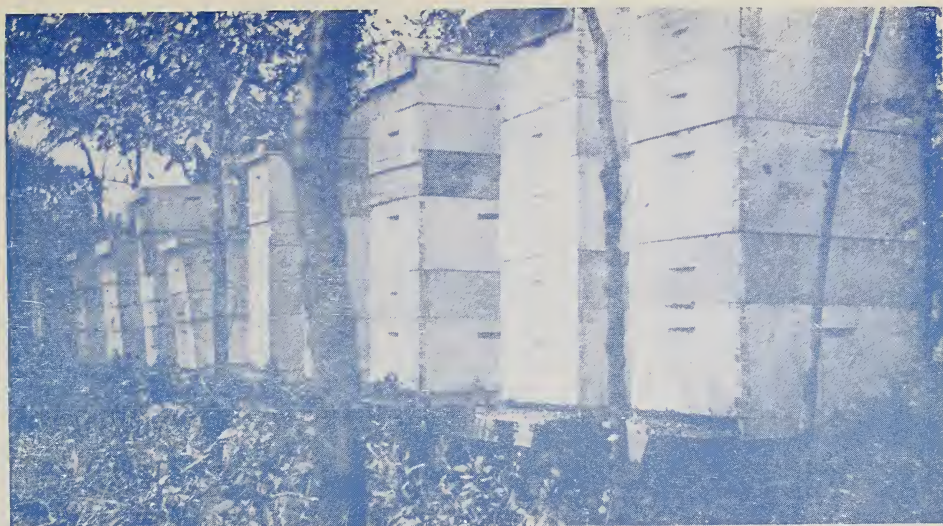
No. 119.—250 for \$2.00; 500 for \$2.50; 1000 for \$3.50; each additional 1000, \$2.00.



No. 121.—250 for \$2.80; 500 for \$3.40; 1000 for \$4.40; each additional 1000, \$2.80.



No. 105.—250 for \$2.00; 500 for \$2.70; 1000 for \$3.80; each additional 1000, \$2.20.



Achord's Italians Are Good Bees

Whether you have only a few colonies or five hundred, we believe you will like them and they will prove a worthy addition to your yard. They are a bright, hustling, three-banded strain, bred primarily for honey production, but also gentleness and color. We have spared neither labor nor expense to make them the very best.

Price of Queens, June 15th to October 1.

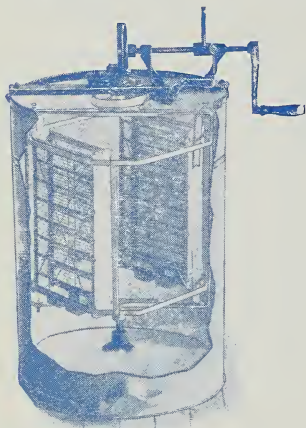
Untested	\$1.00 each; 5 or more, \$0.90; 10 or more, \$0.80; 25 or more, \$0.75
Select Untested	\$1.10 each; 5 or more, 1.00; 10 or more, .90; 25 or more, .80
Tested	1.75 each; 5 or more, 1.65

Safe arrival and satisfaction guaranteed.

W. D. ACHORD, FITZPATRICK, ALABAMA.



What Extractor to Buy



Root Two-frame Reversible Extractor, more of which have probably been sold than of all other makes combined.

What should you know very positively about an extractor before buying one?

You should know, first of all, that it is strong, rugged, built on right mechanical principles, and so will not fail you in the busy rush of the extracting season.

You should know that back of the extractor that you buy stands the guarantee of a manufacturer who knows the problems of extracting and has thoroughly worked them out by years of test and experience.

You should know that the manufacturer of whom you buy will be able to give you lasting service, that is to say, furnish you parts for the extractor you buy today even ten or twenty-five years from today, and do it by the earliest express or mail.

You should know that the extractor you buy has the fewest complications possible, and is the easiest to operate.

You should know that the extractor you choose has stood the test of years and is not an experiment that may soon go to the extractor cemetery where so many 'new' extractor hopes have gone.

Our Proposition to You.

We invite the beekeeper to put any one of our extractors to the severest test for strength of construction. Put ours alongside of any other extractor of like capacity, speed both up to the highest number of revolutions possible, and judge for yourself as to strength and ruggedness.

Our warrant for quality and correct construction is this: Many of the extractors we made and sold 25 or 30 years ago are still in operation and doing excellent work. We are making even sturdier, longer-lasting extractors today—for we know how.

Our warrant for prompt service today and ten years from today is this: We are furnishing extractor parts for models made 25 years ago and furnishing such parts by the first outgoing express or mail. What we have done in the past, we shall do in the future. If you buy an extractor of us today, and five or ten or twenty-five years from today want a part for it, our factory will furnish it by earliest return mail or express—just as we have done for years. You can't get that service except from the long-established manufacturers.

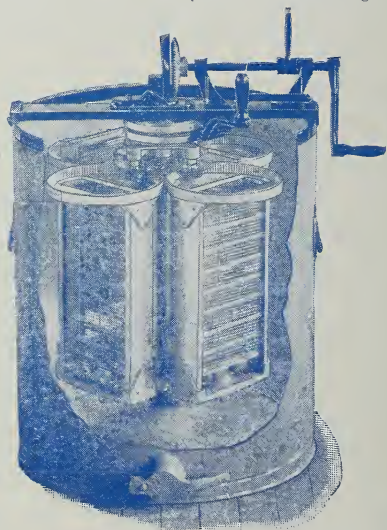
Every Extracting Need Met.

Our 50 years of experience in designing and manufacturing extractors has taught us the extracting needs of the different classes of beekeepers, and today we manufacture nine regular models. The line runs from the "Novice" two-frame hand extractor (the excellent little extractor designed by A. I. Root 53 years ago) up to the latest big extractor, our 8-frame Buckeye Power Extractor. It is a complete line. In it is your extractor, and we shall be glad to advise you what extractor you need if you will tell us how much extracting you have to do, where you have to do it, whether you have power or not, how long time you have in which to do it, and so forth.

Complete Extracting Outfit.

Besides our complete line of extractors, we have the best and latest in uncapping knives, honey storage tanks, capping-melters, wax-extractors, wax-presses, honey-strainers, oil and gasoline stoves—everything for extracting. Ten pages of our 1922 catalog are devoted to extracting equipment. It is free to you for the asking.

Write for quotations on your complete extracting equipment.



Four-frame Buckeye Hand or Power Extractor.

The A. I. Root Co., West Side Sta., Medina, Ohio